BY ORDER OF THE
SECRETARY OF THE AIR FORCE

AIR FORCE INSTRUCTION 11-2E-3,
VOLUME 3

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Flying Operations

E-3--OPERATIONS PROCEDURES

COMPLIANCE WITH THIS PUBLICATION IS MANDATORY

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OPR: HQ ACC/DOYA (Major Greg A. Kent)

Certified by: HQ USAF/XOO
(Maj Gen Richard A. Mentemeyer)

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This instruction implements policy guidance in AFPD 11-2, *Aircraft Rules and Procedures*; AFPD 11-4, *Aviation Service*; and AFI 11-202V3, *General Flight Rules*. It provides the basis for worldwide employment of the E-3 Airborne Warning and Control System (AWACS). This publication does not apply to the Air National Guard (ANG). All aircrews will follow this volume which prescribes standard operating procedures and restrictions. Complementary references are included. Commanders must ensure that individuals are fully qualified according to all applicable directives prior to being utilized as Basic Mission Capable (BMC) or Combat Mission Ready (CMR) crewmembers. Commanders will provide aircrews with sufficient planning factors to ensure mission accomplishment. Flying safety will not be compromised. Issue this volume to E-3 aircrew members in accordance with local procedures. MAJCOMs, DRUs, and FOAs are to forward proposed MAJCOM, DRU, or FOA-level supplements to this volume to HQ AFFSA/XOF, through HQ ACC/DOYA, for approval prior to publication IAW AFPD 11-2. Copies of MAJCOM, DRU, and FOA-level supplements, after approved and published, will be provided by the issuing MAJCOM, DRU, or FOA to HQ AFFSA/XOF, HQ ACC/DOYA, and the user MAJCOM, DRU, and FOA offices of primary responsibility. Field units below MAJCOM, DRU, and FOA level will forward copies of their supplements to this publication to their parent MAJCOM, DRU, and FOA office of primary responsibility (OPR) for post-publication review.

NOTE: The terms Direct Reporting Unit (DRU) and Field Operating Agency (FOA) as used in this paragraph refer only to those units that report directly to HQ USAF. Keep supplements current by complying with AFI 33-360V1, *Publications Management Program*. See paragraph **1.2.** for procedures on how and where to submit recommended changes to this publication.

This instruction requires the collection or maintenance of information protected by the Privacy Act of 1974. The authority to collect and maintain the records prescribed in this instruction are 37 USC 301a, Incentive Pay; Public Law 92-204 (Appropriations Act for 1973), Section 715; Public Law 93-570 (Appropriations Act for 1974); Public Law 93-294 (Aviation Career Incentive Act of 1974); DoD Directive 7730.57 (Aviation Career Incentive Act of 1974 and Required Annual Report, February 5, 1976, with Changes 1 and 2); and Executive Order 9397. System of records notice F011 AF XO A, Aviation

Resource Management System (ARMS) applies. The Paperwork Reduction Act of 1974 as amended in 1996 affects this instruction. Also, the Air Force Forms Management Program IAW AFI 37-160V8, *The Air Force Publications and Forms Management Program--Developing and Processing Forms,* affects this instruction. Records Disposition. Ensure that all records created by this AFI are maintained and disposed of IAW AFMAN 37-139, *Records Disposition Schedule*. The reporting requirements in this publication are exempt from licensing according to AFI 33-324, paragraph 2.11.10, *The Information Collections and Reports Management Program; Controlling Internal, Public, and Interagency Air Force Information Collections*.

SUMMARY OF REVISIONS

This document is substantially revised and must be completely reviewed.

Following the retirement of the TC-18 training aircraft, all reference to these aircraft have been deleted. The procedures for calculating TOLD using a computer has been added in paragraph **4.8.3.1.** Additionally, alert procedures have been incorporated in paragraph **3.22.** Also, the definition of "passenger" has been clarified in paragraph **4.8.14.4.** Finally, **Chapter 5** was revised to update the mission crew chain of command to have the Electronic Combat Officer (ECO) directly report to the Mission Crew Commander (MCC).

This instruction contains references to the following field (subordinate level) publication which, until converted to a departmental level publication, may be obtained from the respective MAJCOM publications office :

Publication: ACCI 21-101, *Objective Wing Aircraft Maintenance* (superseded ACCI 21-166)

Chapter 1

GENERAL

1.1. Waivers. Route waivers through HQ ACC/DOYA, HQ PACAF/DOY, or HQ AFRC/DOT as appropriate (HQ AFRC/DOT send info copy to HQ ACC/DOYA) .

1.2. Recommended Changes. Send comments and suggested improvements to this volume on AF Form 847, Recommendation for Change of Publication, through channels, to HQ ACC/DOYA, 205 Dodd Blvd., Suite 101, Langley AFB VA 23665-2767. HQ USAF/XO will approve all changes to this instruction, except as specified herein, unless an aircraft emergency or operational necessity dictates exception .

1.3. Abbreviations, Acronyms, and Terms. See **Attachment 1.** .

Chapter 2

MISSION PLANNING

2.1. Responsibilities. The responsibility for mission planning rests with the aircraft commander (AC). Preparation for mission tasking and subsequent execution is the responsibility of the mission crew commander (MCC). The operations functions of the unit will support both efforts. Under normal circumstances a crew scheduled for a mission will complete their own planning and briefing under the supervision of the AC and MCC on the working day prior to the flight. Air Force Reserve Command (AFRC) aircrews will use local policy which may utilize the AFRC mission planning cell. During circumstances that require an accelerated response, the crew scheduled to perform the mission may be placed in crew rest and a group of qualified individuals will be designated to perform mission planning and/or briefings. Units will develop specific procedures to ensure all aircrew members are thoroughly familiar with and prepared for each flight.

2.2. Forms and Logs. Specific flight plans, logs, and mission forms will be developed/specified by the appropriate group commander. Existing AF and MAJCOM forms should be used to the maximum extent possible.

2.3. Navigational Charts. Annotate navigational charts to reflect:

2.3.1. Special use airspace within the altitude structure and within 50 nautical miles of the planned route of flight. The navigator need not annotate special use airspace along those portions of the route conducted on established airways referenced by Flight Information Publication (FLIP) enroute charts. On airways, the navigator may correlate special use airspace directly from the FLIP charts. Annotate restricted and warning areas adjacent to operating areas on the navigator's chart. Annotation of the applicable special use airspace will include boundaries, altitudes, times, and conditions.

2.3.2. Emergency Airfields sufficient to cover area of flight.

2.3.3. High Terrain within 50 nautical miles of planned route of flight and 25 nautical miles of the departure/arrival base.

2.3.4. A local area chart of Operational Navigation Chart (ONC) or larger scale to sufficiently cover the planned departure/arrival, and to include highest terrain or obstacle within 25 nautical miles.

2.3.5. Mission Airspace encompasses boundaries and altitude structure of assigned fighter working airspace, E-3 orbit airspace, and E-3 air refueling airspace .

NOTE: Units will, if necessary, specify flight plan requirements and procedures in their local chapters to meet specialized mission requirements.

2.4. Briefings/Debriefings. The AC/MCC will brief/debrief all crewmembers to ensure safe/effective mission accomplishment. Locally developed briefing guides (developed in reference to AFI 11-202V3, Chapter 2) will be used to provide a reference list of items that apply to a particular mission and will be used as the basis for mission planning and briefing actions. Brief items in any logical sequence, and those items understood by all participants may be briefed as "Standard." All aircrew members will attend these briefings unless excused by the AC/MCC or unless local procedures dictate otherwise.

2.5. Mission Planning Requirements. The appropriate group commander may waive requirements contained in this paragraph if deemed necessary to accomplish a specific mission.

2.5.1. Aircrew Planning:

2.5.1.1. Briefings**.** Normally the planning/briefing sequence will be pre-mission planning, specialized briefings, and mission planning summary, all taking place on the duty day prior to the flight. AFRC aircrews will use local policy established by the 513 ACG commander. The pre-mission briefing will take place after the crew reports on the day of the flight. For pilot proficiency sorties (P-sorties), the crew may plan and brief on the day of the flight. In this instance, the crew will perform those items listed in locally developed Same Day Mission Planning Procedures for P-sorties.

2.5.1.2. Passengers**.** The AC will assign a crewmember to be responsible for passengers or distinguished visitors; see Transportation of Passengers in **Chapter 3**, para **3.12.** in this instruction for minimum responsibilities.

2.5.1.3. Airframe Status. Airframe status information will be obtained from the appropriate maintenance unit and open AFTO Form 781, ARMS Aircrew/Mission Flight Data Document discrepancies will be briefed .

2.5.1.4. Controller Assisted/Directed Rendezvous. If an A/R is scheduled, the AC, Nav, and Air Weapons Officer (AWO) or Weapons Director (WD) will thoroughly discuss the rendezvous procedures and techniques. The Nav will supply the AWO/WD with the following information :

2.5.1.4.1. Air refueling initiation point (ARIP) and air refueling control point (ARCP) coordinates in degrees LAT/LONG .

2.5.1.4.2. Air refueling altitudes.

2.5.1.4.3. Desired tanker offset and turn range, if necessary.

2.5.1.4.4. Range and offset calls desired during the rendezvous.

2.5.1.4.5. Any alternate procedures.

2.5.1.5. Orbit Planning. The AC and Nav will coordinate with the MCC, Senior Director (SD), Air Surveillance Officer (ASO), and ECO to determine optimum orbit configuration based on tasking and orbit limitations in T.O. 1E-3A-1-1, *Flight Manual, USAF Series E3B and E3C Aircraft* .

2.5.2. Mission Crew Planning. The following items will be accomplished during mission planning:

2.5.2.1. The MCC will ensure mission activities are planned according to applicable checklists and guides.

2.5.2.2. MCC, SD, ASO, ECO, Communications System Operator (CSO), and Battle Staff will develop a communication plan to ensure accomplishment of mission requirements.

2.5.2.3. Log Book Review/Mission Equipment Status:

2.5.2.3.1. Log Book Review. The Airborne Radar Technician (ART), Computer Display Maintenance Technician (CDMT), and Communication Technician (CT) will review the mission systems history log book if available. They will note equipment configurations used on

previous flights, recurring equipment malfunctions, and previous/new equipment malfunctions. The CDMT will also review the software versions used on past flights.

2.5.2.3.2. Mission Equipment Status. The ART, CDMT, and CT will obtain their respective systems status from the appropriate maintenance unit. Open AFTO 781 discrepancies will be noted. If possible, accomplish a face-to-face brief with the respective mission specialists. The Computer Automated Maintenance System (CAMS) will be used to determine open AFTO Form 781 discrepancies.

2.5.2.3.3. Status Brief. The ART, CDMT, and CT will brief the status to the MCC. The CT will also brief the CSO.

2.5.2.4. The CDMT will coordinate all computer software requirements. Minimum software requirements will be IAW local operating procedures.

2.5.2.5. The MCC will assess impact of equipment limitations and adjust tasking as necessary. The MCC will conduct a final review of mission crew planning.

2.6. Local Checklists/Aircrew Aids. Locally produced checklists and aircrew aids will include as a minimum:

2.6.1. Mission Planning Checklists (as required).

2.6.2. Briefing Guides.

2.7. Theater Procedures Aircrew Aids. The unit specifically tasked to support the area of operations will develop these aids (classified/unclassified) and make them available to the crew upon implementation of a contingency operations plan (OPLAN) for deployment to the theater. As a minimum, these aids will include:

2.7.1. Communications plans.

2.7.2. Flight and Mission crew positional actions/procedures.

2.7.3. Rules of Engagement.

2.7.4. Other information deemed necessary by the unit.

Chapter 3

AIRCREW OPERATING PROCEDURES

3.1. Responsibilities. The AC is responsible for the safe, effective conduct of flight operations. The aircrew is responsible to the AC for the successful accomplishment of all flight activities. That portion of the flight directly affecting the accomplishment of the E-3 mission will be coordinated with the MCC.

3.2. Minimum Crew Manning:

3.2.1. Minimum flight crew manning includes the aircraft commander (AC), copilot (CP), navigator (Nav), and flight engineer (FE). The applicable wing commander will determine conditions that warrant minimum flight crew manning on a case-by-case basis .

3.2.2. P-sorties will be flown with a minimum of five crewmembers: AC, CP, Nav, FE, and one additional crewmember to act as safety observer. The applicable group commander has the waiver authority to authorize a flight without a safety observer.

3.2.3. Minimum mission crew manning to power up the mission systems will include MCC, ASO, ART, CDMT, CT, and CSO. Mission crew manning may vary by the type mission flown.

3.3. Aircrew Duty Period/Augmentation:

3.3.1. Aircrew duty period is 16 hours. Augmented aircrew duty period is 24 hours. With autopilot altitude-hold or any axis of the autopilot inoperative, limit aircrew duty period to 12 hours and the augmented aircrew duty period to 16 hours.

3.3.1.1. An augmented flight crew will consist of a qualified pilot, navigator, and flight engineer in addition to the normal flight crew. Addition of flight crewmembers after the first takeoff in a crew duty period is not considered augmentation.

3.3.1.2. The applicable operations group commander will determine the augmented mission crew composition depending upon mission requirements.

3.3.2. Crew Duty Day Extension. The wing commander or equivalent may extend the aircrew duty period up to 2 hours. Refer to AFI 11-202V3, paragraph 9.10 for criteria to extend crew day. Augmented aircrew duty period may not be extended .

3.3.3. Non-duty Time. Crewmembers will be afforded 12 hours of non-duty time after a flight before reporting for normal non-flying duties, unless waived by squadron commander or operations officer.

3.3.4. Crew Rest Timing. Crew rest for successive flight activity will not begin sooner than 1 hour after final landing from previous flight activity, or when last crewmember departs after completing related aircrew duties.

3.3.5. Crew Rest for Deploying/Redeploying Aircrews. Due to the long flights and numerous time zone changes involved in flying to and from overseas deployed locations, unless waived by applicable operations group commander, ground time between landing and subsequent takeoff will not be planned for less than 18 hours. “Ops stops” made within an aircrew duty period do not apply.

3.3.6. Management of AFRC Crewmembers. The on-scene commander or E-3 detachment commander (DETCO) is responsible for the effective management of aircrews. An element of that respon-

sibility is the effective use of the Reserve associate aircrew personnel during their periods of availability. There is no guarantee that missions will always be completed at scheduled Mission End Time (MET). Therefore, it is incumbent upon Reserve associate crew members to make available sufficient time to accommodate unavoidable delays in returning to home station. Scheduled Return Time (SRT) will be calculated MET plus 24 hours for routine exercise and operational deployments. SRT(s) for contingencies and missions of unknown duration will be determined by the 513 ACG/CC and 552 OG/CC or the requesting authority in coordination with HQ AFRC. The SRT will be determined and placed on the initial and subsequent flight authorizations until the mission is complete. The overall objective is to recover aircrews on schedule and provide scheduling stability. Two essential elements of this concept are realistic determination of SRT(s) based on mission duration and conscientious management by the on-scene commander or DETCO to ensure return of reserve associate aircrews by the MET. Except in uncontrollable or unusual circumstances, Reserve associate crewmembers must be assured that their missions will be complete within the SRT. The Reserve associate AC and MCC will be provided a copy of all mission itinerary changes. Delays in return of Reserve associate personnel beyond their SRT will be coordinated through the 552 OG/CC, the 513 ACG/CC, and concurred with by the aircrew. Every available means will be used to return Reserve associate crewmembers to home station to meet the SRT. If Reserve associate aircrew (or members) cannot extend past the SRT, the on-scene commander will verify whether military or contract means of transportation is available. If no such means are available, the on-scene commander or DETCO will use the most expeditious means, including commercial air, to return Reserve associate personnel to home station .

3.4. Pre-Mission Duties. Squadron commanders (SQ/CC) and operations officers (DO) may adjust crew report times to meet mission requirements. Crew report times will allow sufficient time to accomplish all preflight activities (normally 2+15 hours prior to takeoff). Normally use a 3+30 hour show time for P-sorties planned and flown on the same day. The FE and technicians (CSO/CT/AMSS) should arrive at the aircraft 1+30 hours prior to the scheduled takeoff time. Crew show at the aircraft for all other crewmembers will normally be no later than 1 hour prior to the scheduled takeoff time. While deployed, the AC, with concurrence of the MCC and DETCO, may adjust crew report time to meet mission requirements .

3.5. Minimum Equipment. The 552 OG, in conjunction with the 513 ACG, will develop a Minimum Equipment List (MEL) for use by all AWACS crews as a guide to determine operable equipment required for safe flight. 552 OG will forward a copy of the MEL to HQ ACC/DOYA, HQ PACAF/DOY, and HQ AFRC/DOT.

3.6. Communications:

3.6.1. Required Radio Calls. Make the following radio calls to the applicable command post/squadron operations readiness center unless local directives or tactical deception requirements specify otherwise :

3.6.1.1. Engine start time (at least 10 minutes prior to engine start to allow notification of Central Security Control (CSC). (AC/CP)

3.6.1.2. Actual takeoff time. (Nav)

3.6.1.3. Significant changes in mission timing. (Nav)

3.6.1.4. Post-air refueling report. (CSO) (Optional per AC/MCC)

3.6.1.5. On station/Ops Normal time (NLT 15 minutes after arriving on station). (CSO) (Optional per AC/MCC)

3.6.1.6. Time off station (NLT 15 minutes after departing station). (CSO) (Optional per AC/MCC)

3.6.1.7. Maintenance codes and Estimated Time of Arrival (ETA) (NLT 1 hour prior to final landing). (CSO)

3.6.1.8. Revised ETA (if changed by more than 15 minutes) when in UHF radio contact. (Nav)

3.6.1.9. Anytime a malfunction or incident occurs that will adversely affect mission accomplishment. (AC/MCC)

3.6.1.10. Sortie Block Time and flight duration. (Nav)

3.6.2. Maintenance Codes (Aircraft Landing Status and System Capability Codes). The MCC will ensure each technician provides the maintenance codes to the CSO at least 1+30 hours prior to landing. Use the Aircraft Landing Status and System Capability Codes as defined in ACCI 21-101, *Objective Wing Aircraft Maintenance* (superseded ACCI 21-166), and included in applicable aircrew aids.

3.7. Weapons Controller Assisted/Directed Rendezvous:

3.7.1. General. The navigator is primarily responsible for the success of an AWO/WD assisted rendezvous. AWO/WD will provide information to assist the nav in accomplishing the rendezvous and for situational awareness. The AWO/WD is primarily responsible for the success of the AWO/WD directed rendezvous. The flight deck will provide information to assist the AWO/WD in accomplishing the rendezvous and for situational awareness.

3.7.2. Communications. Coordination between the Nav and AWO/WD during the rendezvous will be over Net 1. Other crewmembers will not use Net 1 for 30 minutes before the ARCT until after the refueling is complete, unless safety of flight dictates. For a AWO/WD directed rendezvous it may be necessary to conduct the rendezvous over the Flight Deck UHF radio .

3.7.3. Procedures. The AWO/WD will execute the pre-planned type of rendezvous as coordinated with the AC and Nav. The AWO/WD will pass bearing, range, and offset of the tanker as prebriefed/required. The pilot will advise the AWO/WD/MCC when the flight deck has visual contact with the tanker and when to terminate mission crew assistance.

3.8. On-Station Procedures:

3.8.1. Fly mission orbits at best endurance speed.

3.8.2. Aircraft position will be coordinated between the MCC, Nav, and AC.

3.9. Radar Radiation Restrictions. Do not radiate the mission radar at or below flight level (FL) 180 due to the potential for conflict with visual flight rules (VFR) traffic that may pass closer than 650 feet vertically and 1,300 feet horizontally. However, during contingency operations, emergency situations, and special operations, the mission radar may be radiating at or below FL 180 within equipment limitations .

3.10. Aircraft Position Monitoring. Aircraft position relative to a preplanned track is the responsibility of both the flight and mission crews. The applicable wing commander may waive the following requirements if deemed necessary to accomplish a specific mission .

3.10.1. The pilot, co-pilot and navigator positions will be occupied, except for short periods of crew relief, during flights within 25 nautical miles (NM) of an established prohibited area or within 50 NM of a potentially hostile border.

3.10.1.1. Flight Crew Procedures:

3.10.1.1.1. ACs will monitor the E-3 position via radio navigational aids and Global Positioning System (GPS) Integrated Navigation System (GINS). The AC will ensure separate steering solutions are selected on the pilot and copilot Control Display Units (CDU) .

3.10.1.1.2. The nav, in coordination with the AC, will establish a radio navigation fix or line of position between the closest point of the E-3 orbit and the threat area as a "no fly beyond line" for all E-3 orbits. This information will be passed to the MCC.

3.10.1.1.3. Flight crews will monitor ground speed during taxi and verify the aircraft position at the hammerhead is accurate. The nav will attempt to realign the inaccurate Embedded GPS INUs (EGI) if any discrepancies are noted.

3.10.1.2. Mission Crew Procedures:

3.10.1.2.1. The MCC must have at least a stand-behind position at an operational console when a dedicated console is not available.

3.10.1.2.2. The AWACS monitor's and MCC's consoles must display the AWACS DATA LINK net participant symbol and E-3 track tabular display (TD). If the accuracy of the E-3 symbol is in doubt, consider worst case location, and coordinate with the flight deck to take immediate action to reposition the aircraft from prohibited/threat areas.

3.10.2. An E-3 is operating under Military Assumes Responsibility for Separation of Aircraft (MARSA) conditions when flying in Warning Areas, Military Operating Areas, Restricted Areas, or Air Traffic Control (ATC) assigned working areas with other aircraft. The AC and MCC are responsible to ensure safe separation between the E-3 and other aircraft.

3.11. AWACS Monitor:

3.11.1. Any time the mission radar or identification, friend or foe (IFF) is operating, the MCC will designate an AWACS monitor to provide traffic advisories to the flight crew. Notify the flight crew and MCC when AWACS monitor assumes monitor duties, notify the the MCC when it changes from weapons to surveillance (or vice versa), and notify both the flight crew and MCC whenever AWACS monitor is terminated.

3.11.2. The AWACS monitor will pass track information with the following parameters:

3.11.2.1. For ATC-controlled airspace**:** Tracks that are within $\pm$1,000 feet (IFF Mode C) or 3,000 feet radar measured of E-3 altitude and 15 miles from the E-3, if the track is on a heading towards the E-3, overtaking, or passing in front of the E-3.

3.11.2.2. For non-controlled airspace: Tracks which are within $\pm$3,000 feet of E-3 altitude and 15 miles from the E-3, if the track is on a heading towards the E-3, overtaking, or passing in front of the E-3.

3.11.2.3. Traffic advisories will include any climbing/descending and/or maneuvering aircraft which could pose a threat to the E-3.

3.11.2.4. Expanded parameters as mutually agreed upon by the AC and MCC. Consider expanding the above parameters due to high density or uncontrolled airspace and threat assessment .

3.11.3. Pass the tracks to the flight crew over Net 1 giving clock position, range, altitude, and crossing information about the traffic. If the E-3 is in a turn, pass traffic calls using magnetic bearing and range rounded to the nearest 10 degrees. To increase situational awareness and promote radio communication deconfliction, AWACS monitor will monitor ATC frequency .

3.12. Transportation of Passengers:

3.12.1. Space-A Passengers. Space-A passengers will not normally fly on the E-3 due to mission and training requirements.

3.12.2. Responsibility. The crewmember(s) designated by the AC to be responsible for passengers or distinguished visitors will:

3.12.2.1. Supervise passenger movement, especially on the flight line.

3.12.2.2. Assist passengers in locating assigned seats.

3.12.2.3. Assist in familiarizing passengers with aircraft interior and survival equipment.

3.12.2.4. Brief all passengers according to AFI 11-202V3, *General Flight Rules,* (using **Attachment 3** of this publication) prior to engine start .

3.12.2.5. Assist and direct passengers in the event of an aircraft emergency.

3.12.3. Loading/Off-loading:

3.12.3.1. All engines should be shutdown if large amounts of baggage must be stowed or removed, or if extensive passenger movement is required to or from the aircraft.

3.12.3.2. When appropriate, engines on the left side of the aircraft can be shutdown and an aircrew member will be positioned at the bottom of the steps to direct loading/off-loading operations prior to any passengers entering or departing the aircraft.

3.12.3.3. If only the left engines are shutdown, the TAXI BACK or an approved checklist for the given situation may be used.

3.12.4. Passenger Comfort. The pilot will make every effort to enhance the comfort of passengers. Flight operations should be planned for the minimum use of drag devices and maneuvers which might cause discomfort or apprehension.

3.13. Debriefings:

3.13.1. Conduct the maintenance debriefing as soon as practical after engine shutdown. The AC, MCC, FE, ART, CDMT, CT, and any crewmember making an entry in the AFTO Form 781A, Maintenance Discrepancy and Work Document, will attend .

3.13.2. If required, conduct an intelligence debriefing.

3.13.3. Situation depending, conduct a crew debriefing.

3.14. Flying Clothing/Equipment:

3.14.1. All aircrew members will wear or carry the minimum items of clothing and equipment according to applicable directives. In addition, all crewmembers will wear nomex flying gloves during engine start, takeoffs, landings, and emergencies except where the flight gloves hinder completion of required actions.

3.14.2. It is the responsibility of each crewmember to store/secure their personal and professional equipment carried onboard. Keep equipment clear of all entry doors, hatches and all emergency equipment during all ground and flight operations. The FE, CSO, and ART will ensure that these areas are clear of obstructions during their preflight inspection.

3.14.3. Crewmembers will not wear lightweight headsets when entering the lower compartments.

3.15. Aircraft Security at Enroute Stops/Destination:

3.15.1. The AC is responsible for ensuring aircraft security at enroute stops. Secure the aircraft as a Protection Level 2 (formerly known as Priority B) resource according to AFI 31-101, *The Air Force Installation Security Program*, as supplemented by MAJCOM. This requires a US entry controller (at least one per every two aircraft) and restricted access. Provide a copy of the flight orders and passenger manifest (as applicable) to the entry controller as a way to identify persons authorized entry to the aircraft as well as those crewmembers designated by the AC to have escort privileges. Perimeter patrol can be accomplished by host nation security, but the entry controller must be US security personnel or a US E-3 crewmember. In addition, equipment classified as SECRET (that cannot be removed from the aircraft) must be safeguarded by US security personnel or a US E-3 crewmember. Only the AC may release security from the aircraft. Waiver authority is the appropriate wing commander .

3.15.2. The MCC is responsible for the security of classified mission documents and software. While deployed or during enroute stops, classified mission documents and software can be stored on the aircraft when U.S. security personnel are used as the entry controller. In the event you stop at a location where no US security personnel are available, the MCC will designate crewmember(s) to remain with the software and classified mission documents to provide security.

3.16. Personal Publications Requirements . Local units will issue each crewmember publications as determined necessary. See local supplement to this publication for requirements listing.

3.17. Aircraft Recall/Diversion. Challenge any recall or diversion of an E-3 using the appropriate authentication for the theater of operation. P-sorties do not require authentication.

3.18. Transition Training:

3.18.1. Do not conduct transition when scheduled takeoff or final landing is between 2400L and 0600L without squadron operations officer approval.

3.18.2. If practical, allow the mission crew to deplane if transition will be flown. Transition with mission crew can be flown provided the total does not exceed 2+30 hours. However, no more than 1+30 hours at one time can be conducted without SQ CC/DO approval.

3.18.3. Do not accomplish transition until approved by the unit operations officer (or higher authority) if planning for transition was not done during mission planning, or unforeseen circumstances precluded prior coordination.

3.18.4. Transition duty day is a period of 12 hours that starts and runs concurrently with the maximum flight duty periods and applies to all flight crewmembers. Transition may be accomplished with additional crewmembers onboard who have exceeded transition duty day provided they are not occupying their primary flight crew duty position or performing flight crew instructor or Stan Eval Flight Examiner (SEFE) duties .

3.18.4.1. The OG/CC can approve requests to extend transition duty day to 16 hours. 513 ACG may perform transition training on missions provided time from start of duty day does not exceed 16 hours and actual flying time does not exceed 12 hours (Ref: AFI 11-202V3, ACC Sup 1).

3.19. Practice Emergency Drills. Thoroughly plan, brief and practice simulated emergency drills (i.e. Ditching, Crash Landing, Loss of Pressurization, Smoke or Fumes, and Fuselage Fire drills) during each training sortie. The following procedures apply:

3.19.1. The AC and MCC will coordinate prior to initiation, and make every effort to inform all instructors and evaluators of emergency drill timing in order to maximize training.

3.19.2. Operational requirements will not be interrupted.

3.19.3. Doors and hatches will not be opened and equipment will not be powered down. However, if a simulated emergency drill is performed after calling "off station," a normal equipment power down may be incorporated into the drill in anticipation of landing the aircraft.

3.19.4. Thoroughly pre-brief passengers.

3.19.5. The AC will make a public address (PA) announcement prior to commencing and terminating practice emergency drills .

3.19.6. 970 AACS crews will practice simulated emergency procedures when mission profiles allow.

3.20. Aircraft Cleanliness. It is the AC and MCC's responsibility to ensure the aircraft is clean and orderly after a mission. All crewmembers are responsible for removing or stowing their personal and professional items prior to departing the aircraft.

3.20.1. All crewmembers are responsible for Foreign Object Damage (FOD) prevention/accounting prior to deplaning.

3.21. Aircraft Configuration for Static Display. Whenever an E-3 is on static display and opened for viewing, there will be a passenger stand at each open door. Hatches will only be opened when an aircrew member is positioned at the hatch. ACs will ensure proper safety/security precautions are taken to protect the aircraft, passengers and crew. Command instructions concerning participation in static displays and aerial events provide further guidance.

3.22. Alert Duty.

3.22.1. Types of Alert.

3.22.1.1. Readiness Posture One (RP-1) denotes an aircraft and crew capable of launching in 1 hour from notification. Crews designated for RP-1 alert duty should normally be housed in a designated alert facility. 12 hours of pre-alert crew rest is required prior to assuming RP-1 alert. Preflight/cocking of alert aircraft or other duties directly related to alert launches (such as checking weather and NO Tams) by alert aircrews, during the hours 0700-1900 local, does not start the air-

crew duty period. Alert crews are limited to one alert preflight, not to exceed four hours during the hours 0700-1900. Any other official duty will start the aircrew duty period. Aircrew duty period begins when the crew is notified to launch.

3.22.1.2. Readiness Posture Three (RP-3) denotes an aircraft and crew capable of launching in 3 hours from notification. 12 hours of pre-alert crew rest is required prior to assuming RP-3 alert. Since the crew normally holds alert in their personal quarters, preflight or other duties, if required, interrupt crew rest and start the aircrew duty period. Aircrew duty period begins when the crew shows for duty.

3.22.1.3. Readiness Posture Fifteen (RP-15) denotes an aircraft and crew capable of launching 15 hours after notification. The alert crew will be present for normal duty each day and carry pagers and/or cell phones for launch notification. Crew rest begins after notification of launch requirement. Aircrew duty period begins when the crew shows for duty .

3.22.2. Maximum aircrew duty day is 12 hours. Flight duty period extensions are IAW 11-2E-3V3, paragraph **3.3.2.**.

3.22.3. If a crew assumes alert during the hours 0700-1900 local, the act of assuming alert (signing in, picking up alert pager, receiving an initial brief, and/or proceeding to an alert facility) does not interrupt crew rest or start the aircrew duty period .

3.22.4. If an alert crew begins their duty day, they must be afforded 12 hours of crew rest prior to reassuming alert status. Additionally, reconstitution will be conducted IAW AFI 11-202V3, paragraph **9.4.5** and AFI 11-2E-3V3, paragraph **3.3.4**

3.22.5. Personnel will not remain on alert for longer than 7 days.

3.22.6. Post-Alert Compensation Time.

3.22.6.1. If alert duty is performed away from normal quarters (i.e. alert facility or billeting) for a period of 96 hours or more, compensation time off will be 1 day for every 4 days on alert duty, unless waived by the applicable group commander or designated representative.

3.22.6.2. No compensatory time is authorized if alert duty was performed in normal quarters.

Chapter 4

FLIGHT CREW OPERATING PROCEDURES

4.1. Weather Minimums. During instrument flight rules (IFR) weather conditions, comply with command directives .

4.1.1. Icing Restrictions**.** E-3 aircraft will not fly in reported severe icing conditions at any time. If inadvertently encountered, the pilot will immediately depart such conditions. Short climb or descent through areas of forecast severe and/or reported moderate icing is permitted; however, every effort should be made to avoid sustained flight in these conditions.

4.1.2. Turbulence Restrictions**.** E-3 aircraft will not fly in areas of reported severe turbulence. Every effort will be made to avoid areas of reported moderate turbulence. If moderate or severe turbulence is forecast along planned route of flight, the AC will coordinate with weather personnel as to the best course of action to vacate the condition, if encountered.

4.2. Preflight. The AC will relay the following information to the applicable command post/ORC unless local directives or tactical deception requirements specify otherwise:

4.2.1. Maintenance discrepancies which will delay preflight or takeoff.

4.2.2. Inoperative equipment that affects operational capability.

4.3. Engine Start/Taxi:

4.3.1. When using a motorized staircase vehicle (VIP Stand or “Air Stairs”), aircrews will close entry doors prior to their removal or placement.

4.3.2. The occupants of both pilot seats will have their seat belt fastened while taxiing and will also wear their shoulder harness during critical phases of flight.

4.3.3. The navigator will back up the pilots by monitoring GINS ground speed during taxi operations.

4.3.4. Taxi speed in the parking area or any congested area will be slow enough to accommodate a wing walker.

4.3.5. The Supervisor of Flying (SOF) will conduct a last chance inspection, if available.

4.3.6. The navigator will use the weather radar to scan the departure path prior to takeoff to avoid flying into areas of heavy precipitation and/or possible associated turbulence .

4.4. Departure. The aircraft commander will ensure all flight crew members monitor VHF (if available) and UHF guard frequencies during departure. Pilots will monitor only those radios required for flight operations (tower, departure, etc.). The navigator will monitor command post frequency. The FE will monitor mission crew interphone and primary radio required for flight operations from takeoff to cruise altitude. Do not initiate a radio call or PA announcement until safely airborne (300 feet above ground level (AGL) minimum).

4.5. Enroute:

4.5.1. Normally plan for maximum use of E-3 navigation equipment by flying great circle routes. Random RNAV/direct routing may be flown according to FLIP General Planning, **Chapter 4**. Navigators will annotate inflight clearances that change the route of flight on the inflight log and draw them on the chart. Revised ETA's for the new route of flight will be computed and annotated on the inflight log to maintain position awareness.

4.5.2. To ensure positional accuracy, the navigator will make a position check of the navigation equipment as soon as practical after initial level off (preferably within 5 minutes of arriving at final level off altitude), prior to initiating an air refueling rendezvous, after the Post Air Refueling Checklist is complete, and when assuming and departing orbit. Record these checks on the navigator's In-flight Log.

4.5.3. Recorded position checks will not exceed 1 hour (30 minutes while on station) unless flying safety dictates (for example, thunderstorm avoidance, aircraft emergency, etc.). When operating without GPS, full line entries are required.

4.5.4. During trans-oceanic flights or when the aircraft is operating out of radio aid range, navigators will accomplish a coast out/in fix. For trans-oceanic flights navigators will compute an equal time point (ETP). Additionally, the navigator will calculate and plot a new dead reckoning (DR) heading every 30 minutes and provide an outbound heading to the pilot no later than 2 minutes prior to a checkpoint.

4.5.5. Position checks will include, a radio aid fix (when available) and a complete crosscheck of all navigation systems. A heading check will be completed on all missions as soon as practical after the final level off altitude (preferably within 5 minutes after resolution of initial position fix). If the difference between INU 1 and INU 2 is one degree or greater, continue with the mission, but consider the system suspect and monitor it closely. Record the information from this check in the appropriate portion of the In-flight Log.

4.5.6. Radio Monitoring. The aircraft commander will ensure all flight crew members monitor VHF and UHF guard frequencies while enroute**.** The flight crew will normally use VHF No.1 as a primary flight crew radio. One flight crew member will monitor the mission crew interphone at all times.

4.6. On-Station:

4.6.1. The CSO will normally control the use of HF1. The pilot will coordinate with the CSO if the flight crew requires its use. The MCC/CSO will coordinate with the AC if the mission crew requires the use of either of the flight crew's VHF or UHF radios.

4.6.2. Radio Monitoring. The aircraft commander will ensure all flight crew members monitor VHF and UHF guard frequencies while on-station. The flight crew will normally use VHF No.1 as a primary flight crew radio. One flight crew member will monitor the mission crew interphone at all times.

4.6.3. While in the orbit, full line log entries in the Navigator's In-flight Log are not required. As a minimum, the navigator will complete each line of the In-flight Log through the Wind/Velocity-Drift block. Pilots and navigators will closely monitor the first complete trip around the orbit after initial intercept to ensure the aircraft is maintaining proper orbit. To preclude excessive bank angle and degradation of the radar picture, the navigator will notify the pilot and MCC prior to orbit intercept.

4.6.4. The AC has the responsibility and final authority for determining when the aircraft should depart station. ACs will consider forecast enroute and destination weather, enroute winds, icing, mission requirements, fuel requirements, and training requirements, etc.

4.6.4.1. Within 1 hour after assuming station or refueling, the flight crew will compute "Bingo fuel" and report remaining station time to the MCC. If air refueling (A/R) is planned after orbit, make a similar computation allowing enough fuel so that in the event of a missed AR, the aircraft can land at the destination or a preplanned alternate with the required fuel minimums. Bingo fuel computations will not include center wing tank fuel used as ballast to maintain center of gravity (c.g.) forward of 35% mean aerodynamic chord (MAC).

4.6.4.2. If fuel requirements necessitate a modification to on-station duration, pattern, or altitude, the AC will notify the MCC of updated BINGO time.

4.6.4.3. Make a weather check no later than 2 hours prior to estimated time of departure (ETD) from the orbit area. This check will include enroute, refueling track, and landing base weather. Crews will use all available weather sources to keep abreast of changes.

4.6.4.4. Crews should fly an alternate mission in lieu of dumping fuel to adjust gross weight should an equipment malfunction or an inability to complete an assigned mission occur. Alternate missions should be planned and briefed during mission planning day.

4.7. Arrival and Approach:

4.7.1. Approach Briefing. Prior to starting descent from cruise altitude, the pilot flying the approach will brief the crew in accordance with Technical Order and AFMAN 11-217V1, *Instrument Flight Procedure*s, requirements. Three complete sets of the appropriate Terminal Approach Procedures and Standard Terminal Arrival Route (STAR) booklets will be in the cockpit to be used by the pilot, copilot, and navigator. The pilot not flying the approach and the navigator will monitor their respective instruments and all radio transmissions by the controlling agency, and advise the pilot making the approach when noting any deviation from the prescribed procedures or instructions.

4.7.1.1. The pilot not flying the approach will make the following advisory calls:

4.7.1.1.1. Non-Precision Approaches:

4.7.1.1.1.1. 100 feet above minimum descent altitude (MDA).

4.7.1.1.1.2. "Minimums" at MDA.

4.7.1.1.1.3. "Runway in sight." Make this call when the runway environment is in sight. Do not call too soon when obstructions to vision such as fog, haze, low stratus clouds, etc., are present.

4.7.1.1.1.4. "Visual descent point (VDP)."

4.7.1.1.1.5. "Missed Approach Point," (MAP), if applicable.

4.7.1.1.2. Precision Approaches:

4.7.1.1.2.1. 100 feet above decision height (DH).

4.7.1.1.2.2. "Runway in sight." Make this call when the runway environment is in sight. Do not call too soon when obstructions to vision such as fog, haze, low stratus clouds, etc., are present.

4.7.1.1.2.3. "Decision height."

4.7.1.2. The navigator will back up the pilots in monitoring these calls and reporting deviations.

4.7.1.3. The pilot flying the aircraft will:

4.7.1.3.1. Acknowledge all advisory calls over interphone.

4.7.1.3.2. Announce intentions over interphone at the appropriate decision point for both instrument and visual approaches (i.e. "Crew we're going to land/go-around/touch-and-go").

4.7.2. Altitude Monitoring. When climbing or descending, the navigator will call 1,000 feet above/below and level off altitude. While operating at less than 2,000 feet above the ground, the pilot not flying the aircraft will inform the pilot at the controls anytime the indicated altitude varies more than 100 feet from the desired altitude, or if the aircraft appears to be dangerously close to terrain or obstructions. The navigator will back up the pilots in observing and reporting these deviations.

4.7.3. Radio Monitoring. The aircraft commander will ensure all flight crew members monitor VHF and UHF guard frequencies during arrival and approach**.** The flight engineer will monitor mission crew interphone and primary radio required for flight operations during the arrival, approach, and landing.

4.7.4. Priorities. Upon commencing the final approach (glideslope interception or departing the final approach fix [FAF]), flight deck crewmembers will avoid unnecessary distractions. Priorities will be monitoring the approach/landing and completing the BEFORE LANDING checklist. All activities not associated with the approach/landing checklist accomplishment will cease.

4.8. Takeoff and Landing Policy:

4.8.1. Aircraft Commander Responsibilities. A qualified AC will:

4.8.1.1. Make all takeoffs and landings from the left seat when either of the following conditions exist:

4.8.1.1.1. When weather is below 300' ceiling and 1 statute mile (SM) visibility.

4.8.1.1.2. A distinguished visitor (Code 4, Code 4 equivalent, or higher) is on board as a passenger .

NOTE: Instructor pilots may takeoff or land in either seat with the above conditions; however, a copilot will not occupy the left seat.

4.8.1.2. Take the aircraft controls whenever an emergency dictates and continue to fly the airplane until the situation is stabilized .

4.8.2. Copilot Takeoffs and Landings. Copilots may perform takeoffs and landings under the following conditions :

4.8.2.1. Weather is at least 300-feet ceiling and 1 SM visibility, or published minimums, whichever is higher .

4.8.2.2. Properly surpervised, consisting of one of the following:

4.8.2.2.1. IP/SEFE supervision (may be performed from either seat).

4.8.2.2.2. A SQ/CC certified AC in left seat has 50 hours flight time as a CMR E-3 AC.

4.8.2.3. With passengers onboard:

4.8.2.3.1. If not under IP/SEFE supervision, the copilot must be certified by the SQ/CC.

4.8.2.3.2. If passengers are DV Code 4 or higher, a copilot may not occupy the left seat even if under IP/SEFE supervision.

4.8.3. Takeoff/Landing Data (TOLD):

4.8.3.1. A flight engineer will compute all initial takeoff and landing data during mission planning utilizing the authorized TOLD computer program or T.O. 1E-3A-1-1. The pilot/copilot will crosscheck this data using the computer program or T.O. 1E-3A-1-1. Either the initial computation or crosscheck of TOLD data will be done using the T.O. 1E-3A-1-1.

4.8.3.2. When operational/contingency missions dictate the use of mission accomplishment methods, specific approval of the applicable group commander is required.

4.8.4. Reduced Power Takeoffs. The following information is provided in addition to that found in T.O. 1E-3A-1-1:

4.8.4.1. Whenever feasible, a reduced power takeoff should be made.

4.8.4.2. Actual inboard takeoff rated thrust (TRT) will be displayed on the inboard exhaust pressure ratio (EPR) bugs for quick reference in the event TRT is required .

4.8.4.3. For all reduced thrust takeoffs, 1,000 feet will be subtracted from runway available to compute all data except refusal speed.

4.8.4.4. Reduced thrust takeoffs may be accomplished on a wet runway provided the runway is free of snow, ice, and slush.

4.8.4.5. Reduced thrust takeoffs are permitted with falling precipitation provided precipitation is not moderate to heavy.

4.8.5. Tailwind Takeoffs. Tailwind takeoffs are not recommended and normally should not be planned or accomplished. If operational necessity or ATC considerations dictate acceptance of a tailwind condition, a maximum component of 10 knots may exist provided recomputed data does not exceed allowable T.O. 1E-3A-1-1 limits.

4.8.6. Runway Utilization. Minimum runway length and width for takeoff or landing is 7,000 x 135 feet. Aircraft will normally takeoff and land on the longest available runway. Make rolling takeoffs whenever critical field length permits.

4.8.6.1. Intersection takeoffs are not recommended and will not be performed unless operational necessity dictates. In such a situation, follow command directives.

4.8.7. Runway Condition Reading (RCR) Restrictions. The pilot will ask for the minimum RCR recorded on the runway anytime an RCR is reported. Aircraft will not take off or land when reported RCR is less than 10. The applicable group commander has the authority to waiver the minimum RCR to 7 when operational necessity warrants. Do not conduct aircraft ground operations to include taxi and towing with a RCR less than 7.

4.8.8. Crosswind Restrictions:

4.8.8.1. Unless further restricted by aircraft gross weight or emergency conditions, the maximum crosswind component (gust included) for takeoff and landing with RCR 26/23 is 25 knots, RCR

15 is 20 knots, RCR 10 is 15 knots. If RCR falls between the above RCR values, use next lower RCR restrictions. Operation at higher crosswind values requires specific approval by applicable group commander.

4.8.8.2. Copilots are limited to a maximum takeoff/landing component of 15 knots unless under IP/SEFE supervision.

4.8.9. Climb Limited Maximum Takeoff Weight. For normal operations, adjust the aircraft gross weight to achieve a minimum 3 engine climb gradient of 3 percent or as required to meet published climb gradient, whichever is greater.

4.8.10. Simulated Engine Out Takeoffs. Simulated Engine Out Takeoffs are prohibited.

4.8.11. Obstacle Clearance. Takeoff gross weights will be adjusted to:

4.8.11.1. Permit a minimum climb rate of 200 feet per nautical mile where no climb rate is specified in the Standard Instrument Departure (SID).

4.8.11.2. Permit the aircraft to be at the required height over the controlling obstacle when an obstacle and/or climb rate is specified on the SID .

4.8.11.3. All departure planning and required obstacle clearance will be based on the loss of one engine. Departure planning obstacle clearance data and rate of climb computations will be conducted IAW T.O. 1E-3A-1-1*, Flight Manual Performance, USAF Series E3B and E3C Aircraft*.

4.8.12. Noise Abatement. When aircraft performance permits, use published noise abatement procedures.

4.8.13. Landings. Except in emergency situations, the following apply:

4.8.13.1. Computed landing distance plus 1,000 feet must not exceed runway available. If it appears that the actual touchdown will occur beyond the first 1/3 or 3,000 feet (whichever is less) of the runway length, pilots will go-around .

4.8.13.2. Landing gross weight will not exceed 250,000 pounds. Provided all other landing requirements can be safely met, the applicable group commander or DETCO may authorize landings over 250,000 pounds, if mission requirements dictate.

4.8.13.3. Full stop landings with less than 40 degrees of flaps are not permitted.

4.8.13.4. Make no more than one full stop in a 30 minute period. For planning purposes, the AC will determine the brake energy used during landing and then using the decision speed (V1) without headwind correction, determine the brake energy for an abort during a subsequent takeoff. Do not takeoff until the combined energy after ground cooling is less than 28 million ft-lbs. If takeoff is made with brake energy above 10 million ft-lbs, follow the cooling air procedures.

4.8.14. Touch-and-Go Landings. Accomplish touch-and-go landings under the following conditions :

4.8.14.1. IP/SEFE supervision.

4.8.14.2. Minimum weather required is 300’ ceiling and 1 SM visibility.

4.8.14.3. Crosswind component does not exceed the following (including gusts): Dry runway--15 knots; wet runway--10 knots.

4.8.14.4. No passengers on board.

4.8.14.4.1. The following are not considered passengers for this restriction: Wing supervisors, E-3 maintenance personnel, AFA/AFROTC cadets, FAA/ATC personnel, weapons directors, ACC TRSS Detachment 6 personnel not on aeronautical orders, Airborne Control Element (ACE) team members and US customs personnel flying under the provisions of AFI 11-401 and MAJCOM supplement.

4.8.14.4.2. The following are not considered passengers for this restriction with applicable group commander approval prior to takeoff: military members not on aeronautical orders who are awaiting training, Computer Support Group (CSG) personnel conducting inflight software testing, and Mission Crew Training (MCT) and Flight Crew Training (FCT) contract instructors in direct support of training and operations .

4.8.14.5. The following length/width criteria apply: Dry runway--9,000 feet x 135 feet minimum; wet runway--10,000 feet x 135 feet minimum. On a wet runway, touchdown in the first 2,000 feet of the runway or initiate a go-around.

4.8.14.6. On wet runways, conduct touch-and-go landings at flaps 50 degrees only. On wet runways, display the actual charted go-around EPR on the inboard EPR “bugs” for quick reference in the event go-around EPR is required while airborne. Outboard EPR “bugs” should display 1.50 EPR. Wet runway touch-and-go landings are permitted with falling precipitation (i.e., drizzle or light rain), provided the precipitation is not moderate to heavy, not producing a runway surface condition (RSC), and it can be determined that water is not pooling on the runway.

4.8.14.7. Runway is free of all snow, ice, and slush. This does not preclude touch-and-go landings provided the RCR is reported as 23 or higher. The 962 AACS will use the following procedures for Elmendorf AFB: landing surface (67.5 feet left and right of centerline) is completely clear of slush; the minimum RCR reading for any portion of the runway is 10, and the training is approved by the 3 OG/CC.

4.8.15. After Landing. Do not initiate any checklists until clear of the runway.

4.9. Occupancy of Flight Crew Duty Positions:

4.9.1. Pilots may perform their duties from either seat. Copilots must be certified by the SQ/CC in order to perform duties in the aircraft commander position during critical phases of flight and then may do so only under IP/SEFE supervision.

4.9.2. During non-critical phases of flight, if the pilot or copilot leaves the flight deck, the FE position must be occupied by a qualified FE or be supervised by an instructor/SEFE FE .

4.9.3. Non-AR qualified pilots may conduct air refueling activity from either the pilot or copilot position while under IP/SEFE supervision .

4.9.4. During critical phases of flight or simulated/actual emergencies, unqualified pilots or pilots not in training to achieve qualification in the E-3, will not occupy any flight crew duty position. Rated pilot General/Flag officers flying under provisions of MAJCOM guidance are exempt. Waiver authority is MAJCOM/DO.

4.10. Midair Collision Avoidance:

4.10.1. Man all flight deck seats below 10,000 feet MSL. Crews will maintain IFR clearance for separation, and use autopilot whenever practical. The navigator will use the weather radar when possible to search for traffic. The observer will be on headset and actively scan for traffic.

4.10.2. Make seat changes for the pilot or copilot position with the autopilot and altitude hold engaged if operative. Initiate seat changes on the downwind leg of the IFR traffic pattern or above 10,000 feet MSL. Emphasize clearing during the seat change.

4.11. Equipment on the Flight Deck. Hold crew equipment and publications on the flight deck to a minimum commensurate with mission requirements. Stowed equipment must not prevent rapid egress from the flight deck.

4.12. In-flight Meals. Due to the possibility that the pilot and copilot could be incapacitated by food poisoning if both consumed contaminated foods, neither will consume box lunches containing the same prepared ingredients within 1+30 hours of each other before or during flight. Frozen meals cooked prior to consumption, sealed IF rations, fruits, and commercially prepared and sealed items have a much lower potential for bacterial contamination and may be common to both pilots' lunches.

4.13. Fuel Requirements . For planning purposes, fuel reserves on all flights will be 18,000 pounds over the destination alternate fix or in accordance with AFI 11-202V3, whichever is greater.

4.13.1. Alternate fuel required at the initial approach fix at the original destination will allow a penetration and one approach, then climb to optimum altitude and arrive over the alternate with 18,000 pounds of fuel or greater.

4.13.2. Minimum landing fuel for flights on an IFR clearance is 15,000 pounds. If it becomes apparent the aircraft will not land with 15,000 pounds of fuel remaining, declare "Minimum Fuel" and land short of destination or divert as required. However, if the destination is VFR, and only after the aircraft is established in the local traffic pattern, pilots may practice approaches and landings until 12,000 pounds of fuel remain, provided CG limits are not exceeded.

4.13.3. Pilots will declare emergency fuel when the aircraft will not be on the ground with 10,000 pounds of fuel.

4.13.4. When mission requirements dictate and when specifically approved by the applicable group commander, fuel reserves may be reduced (provided they meet or exceed AFI 11-202V3 requirements) to the following :

4.13.4.1. Initial Approach Fix. 12,000 pounds.

4.13.4.2. Minimum Fuel. 10,000 pounds.

4.13.4.3. Emergency Fuel. 8,000 pounds.

4.14. Resource Conservation. Plan missions and make all attempts to fly airspeeds, routes, and altitudes that will produce the least fuel consumption to meet mission requirements .

4.15. Aircraft Ground Refueling . Fully qualified FEs are authorized to refuel the aircraft at bases where E-3 maintenance support is not available. When refueling/defueling aircraft, FEs will comply with

T.O. 1E-3A-2-7-5CL-1 (Refueling and Defueling), T.O. 00-25-172 (Ground Servicing of Aircraft and Static Grounding/Bonding) and T.O. 1E-3A-2-7 (Ground Handling-Servicing and Airframe USAF Series E-3B and E-3C).

4.15.1. Anytime adequate portable fire fighting equipment is unavailable or any condition listed under Abnormal Conditions, Section 1, T.O. 00-25-172 exists, the FE will notify the local fire department. The fire department will be informed of the abnormal condition and parking spot location of aircraft. The FE should be informed by the fire chief of the estimated response time or if a standby fire truck needs to be in position prior to servicing. Communication capability will be immediately available.

4.15.2. In the event base support is limited or nonexistent, other crewmembers may be used as refueling team members at the discretion of the AC. The flight engineer will brief all team members on the use of fire equipment, safety precautions, and emergency shutdown procedures.

4.16. Fuel Jettisoning. Conduct fuel dumping only to reduce gross weight in an emergency or for operational necessity. When circumstances permit, dump above 5,000 feet AGL over unpopulated areas or in designated fuel dump areas. Advise the appropriate air traffic control agency of intentions, altitude, and location when fuel is jettisoned and when the operation is complete. Make the appropriate entry on the AFTO Form 781A**.**

4.17. Thunderstorm Avoidance.

4.17.1. Pilots will neither file a flight plan route nor fly into an area of known or forecast thunderstorm activity when the weather radar is inoperative or unusable and thunderstorm activity cannot be visually circumnavigated.

4.17.2. Avoid thunderstorms by 10 NM below FL 230 and 20 NM at or above FL 230. In the vicinity of the airport, maintain at least 5 NM separation from heavy rain showers and avoid thunderstorm activity by at least 10 NM below FL 230. Approaches or departures may be authorized by the appropriate group commander if thunderstorms are officially observed to be no closer than 5 NM from the airport. The thunderstorm must not be producing any hazardous conditions at the airport, or in the respective landing or takeoff corridor, and must not be forecast/observed to be moving in that direction .

4.18. Aircraft Interior Lighting. During ground/flight operation, it is recommended to keep flight deck lighting at the lowest possible level. During night parking, do not use the high level flight deck lighting until after the aircraft is chocked and brakes are released. This will allow the pilots to ensure that the aircraft does not roll .

4.19. Inflight Engine Failure. During peacetime training missions, if an engine is shutdown in flight, terminate the mission and land as soon as practical, IAW T.O. 1E-3A-1, Section 3, *General Emergency Procedures***.** During contingency operations, if an engine is shutdown in flight, mission requirements may necessitate continuing the sortie unless safety of flight is compromised.

4.20. Inflight Troubleshooting. After flight manual emergency procedures are complete, aircrews will not conduct in-flight troubleshooting.

4.21. Flight Control Malfunctions:

4.21.1. The following procedures will be adhered to when maintenance "redballs" for primary flight control malfunctions during preflight or ground operations. The aircraft commander along with maintenance personnel will evaluate the malfunction and determine appropriate actions necessary to provide an airworthy aircraft. If the malfunction cannot be isolated to a particular part and repaired within a suitable amount of time, the aircraft will be returned to maintenance for repair.

4.21.2. Inflight, if a primary flight control malfunction is experienced, the flight crew will perform the appropriate flight manual procedures, terminate the mission, and land as soon as practical, IAW T.O. 1E-3A-1, Section 3, *General Emergency Procedures*.

4.22. Flight Crew Communications. The flight crew will monitor the briefed primary radio during takeoff, climb, descent, and landing unless directed to do otherwise. The observer's seat occupant will monitor communications and be briefed on the relationship between the pilot's Audio Distribution System (ADS) and the observer's interphone .

4.23. Divert Charts. Units will develop divert charts to cover their local operating areas and publish them in their local chapter to this instruction. Information contained on these charts should include divert airfields, headings, distances, flight times, fuel requirements, and cruise altitudes. Carry divert charts on all flights.

4.24. Simulator Only Maneuvers. The following maneuvers will be practiced in the flight simulator only:

4.24.1. Aborted takeoff.

4.24.2. Simulated engine out takeoffs and simulated engine failure during takeoff and/or climbout to traffic pattern altitude.

4.24.3. Simulated two-engine operations (cruise, approach, go-around, and/or landing).

4.24.4. Simulated three-engine rudder boost out operations (cruise, approach, go-around, and/or landing) .

4.24.5. Initial Buffet/Stick Shaker Recovery.

4.25. Simulated Emergency/Engine-Out Procedures:

4.25.1. Inflight, prior to simulated emergency procedures, the IP/AC must alert all crewmembers in the cockpit.

4.25.2. Except for simulated engine-out landings, restore all aircraft systems to normal operation prior to landing.

4.25.3. In an actual emergency, all student pilot/copilot training and simulated emergency procedures will be terminated. Training will resume only when the AC has determined that no hazard to safe aircraft operation exists .

4.25.4. IP/SEFE supervision is required for all touch-and-go's, flaps 14, flaps 25, and flaps 25 to 50 approaches/landing. Prior to performing a flaps 14 approach/landing, update the brake energy limited

landing weight and brief differences to normal configuration habit patterns, emphasizing gear lowering sequence .

4.25.5. Conduct simulated engine-out approaches, touch and go's, and landings only under the following conditions:

4.25.5.1. No passengers on board. Do not consider Flight Crew Training (FCT) contract instructors in direct support of training and operations as passengers for this restriction .

4.25.5.2. Certified aircraft commanders/copilots may accomplish simulated engine-out missed approaches, go-arounds, and full-stop landings in VFR conditions (day or night) without IP/SEFE supervision.

4.25.5.3. Aircraft commanders/copilots under IP/SEFE supervision may practice simulated engine-out approaches and touch-and-go's in day and night instrument meteorological conditions (IMC) provided weather conditions are at or above published circling minimums (ceiling and visibility) for the runway the approach is flown to, or 1,000 foot ceiling and 3 miles visibility, whichever is higher. Copilots assigned to PACAF will comply with command directives in PACAF supplement.

4.25.5.4. Do not accomplish actual engine shutdown inflight. A reduction in thrust can adequately simulate training in aircraft control procedures .

4.25.5.5. Limit all inflight simulated engine-out activity to a gross weight of 270,000 pounds or less with rudder boost on.

4.25.5.6. All missed approaches will be initiated at 200 feet height above touchdown (HAT) or published minimums whichever is higher. Approaches may be continued visually to 200 feet above published touchdown zone elevation prior to executing a missed approach for training purposes when DH and MDA are above 200 feet HAT .

4.25.5.7. ACs/copilots (under IP/SEFE supervision) may continue simulated engine-out approaches to a touch-and-go provided they follow normal four-engine takeoff procedures.

4.25.5.8. During a simulated engine-out approach, if an unplanned go-around or missed approach is executed, establish symmetrical thrust on all engines as soon as safe and practical.

4.26. Air Refueling Restrictions/Procedures:

4.26.1. Plan to air refuel at a gross weight greater than 205,000 pounds and with a center of gravity forward of 32% M.A.C. Air refueling can be accomplished outside of these limits provided it is thoroughly briefed prior to conducting the AR .

4.26.2. For all normal operations, the gross weight inflight with flaps up will be limited to the maximum gross weight versus altitude for a 2.5G load factor IAW T.O. 1E-3A-1, Section 5. Use of gross weights above these limits requires applicable group commander approval.

4.26.3. Do not accomplish air refueling during training missions when any conditions are encountered which, in the opinion of the pilot or boom operator, result in marginal control of the aircraft or the boom.

4.26.4. Do not accomplish air refueling if you encounter any primary flight control malfunctions or with the series yaw damper inoperative.

4.26.5. Do not accomplish air refueling without tanker disconnect capability, to include manual boom latching, unless an actual fuel emergency or operational necessity exists.

4.26.6. Copilots are authorized to fly the aircraft up to and including precontact with any refueling qualified pilot in the left seat, but will not close inside precontact unless under the supervision of an IP/SEFE, or an AC certified to supervise CP air refueling.

4.26.7. Pilots/copilots undergoing initial qualification or upgrade training may conduct a rendezvous within 1 NM of the tanker without IP/SEFE supervision.

4.26.8. To allow time to establish communications with ATC, discontinue air refueling at least 3 minutes prior to the end of track and descend to the bottom of the block .

4.26.9. Back-up air refueling frequency is HF 6761 upper side band (USB).

4.27. Post Air Refueling Procedures. Use the following procedures after completion of air refueling to achieve safe separation from the tanker:

4.27.1. The receiver pilot will maintain stabilized in the contact position while asking for or initiating a disconnect and will remain stabilized until confirming either visually or verbally that the boom is clear.

4.27.2. After confirmation that the boom is clear, the receiver pilot will begin to move aft to the pre-contact position. Once this separation has been attained, the receiver pilot will begin a slow descent at approximately 500 to 1,000 feet per minute (fpm) and establish a power setting that will ensure increased vertical separation and avoid under-running the tanker during descent.

4.27.3. The pilot will establish a minimum of 1,000 feet vertical separation between the receiver and the tanker. Do not make any turns from the established air refueling heading during the descent phase.

4.27.3.1. Establish 1,000 feet vertical separation and engage autopilot (if available) before initiating the post-air refueling checklist. Slipway doors may be closed to reduce cockpit noise levels. The autopilot circuit breaker may be reset if pulled prior to air refueling.

4.27.3.2. To ensure safe separation during the separation maneuver, the pilot not in control of the airplane and the navigator will monitor the tanker's position by whatever means possible (visual, weather radar, air-to-air TACAN, etc.).

4.27.3.3. If the receiver cannot descend to establish the required vertical separation, the receiver will move back to the precontact position and request the tanker initiate a climb to obtain a minimum of 1,000 feet vertical separation .

4.28. Formation Restrictions. The enroute cell and air refueling formations described in T.O. 1-1C-1-27, *E-3 Air Refueling Procedures With KC-135 and KC-10*, are the only authorized formations. Crews will only fly these formations when specifically tasked, using the procedures published in the appropriate tech orders.

4.29. Abnormal Configurations. Do not fly missions with known abnormal configurations unless approved by the applicable group commander. Abnormal configurations can include a six or seven brake only operation, partial spoilers, inoperative antiskid, etc.

4.30. Three-Engine Ferry Flights. Do not conduct three engine ferry flights unless specifically approved by applicable MAJCOM/DO.

4.31. Landing Attitude Demonstrations. Landing attitude demonstrations may only be accomplished by IP/SEFE's or ACs under IP/SEFE supervision. The following restrictions apply:

4.31.1. Must be accomplished four engine only.

4.31.2. Dry runway only.

4.31.3. Flaps 50 only.

4.31.4. Normal dry runway touch-and-go conditions and restrictions apply.

4.31.5. Go-around will be initiated if aircraft touches down during the initial roundout.

4.31.6. Go-around will be initiated no later than 4,000 feet of runway remaining.

4.32. Aircraft Commander/Copilot Activity Restrictions :

4.32.1. Aircraft Commanders must have been certified as "experienced" in order to accomplish the following activities (SQ/CC must certify each activity):

4.32.1.1. Supervise a certified copilot during air refueling (day only, autopilot on only).

4.32.1.2. Supervise a certified copilot during a simulated engine out approach, missed approach, or full stop landing.

4.32.2. Copilots must be certified in order to accomplish the following activities (SQ/CC must certify each activity):

4.32.2.1. Takeoff and land under the supervision of an AC with passengers onboard (no DVs Code 4 or higher).

4.32.2.2. Perform air refueling under the supervision of a certified AC (day only and tanker autopilot on only) .

4.32.2.3. Perform a simulated engine out approach, missed approach, or full stop landing under the supervision of a certified AC.

Chapter 5

MISSION CREW OPERATING PROCEDURES

5.1. E-3 Missions:

5.1.1. E-3 Tactical Mission:

5.1.1.1. The E-3 is a primary airborne element of the Theater Air Control System (TACS). Specific mission taskings, to include functioning as a Control and Reporting Center (CRC), will be determined by the Joint Force Air Component Commander (JFACC). The E-3 may be responsible for :

5.1.1.1.1. Surveillance within its assigned area of responsibility.

5.1.1.1.2. Detecting and assessing potential threats; pass threat calls.

5.1.1.1.3. Forwarding accurate and timely surveillance data to the CRC/Air Operations Center (AOC) and crosstell appropriate surveillance data to adjacent command and control facilities.

5.1.1.1.4. Identification of traffic in areas without existing ground identification authority or when ground identification facilities are degraded and not capable of providing the identification function .

5.1.1.1.5. Issuing of scramble orders or airborne orders in the absence of ground tactical air control system (GTACS) or when authority is delegated by the AOC.

5.1.1.1.6. Commitment of defensive counterair weapons. This may be self-initiated or directed by a AOC/CRC.

5.1.1.1.7. Maintaining status of available weapons and equipment.

5.1.1.1.8. Airspace regulation and control within an assigned control area.

5.1.1.1.9. Maintaining continuous communications with other airspace control agencies.

5.1.1.1.10. Relaying information/instructions from the AOC, CRC, and other elements of the TACS (i.e. JSTARS) to airborne aircraft.

5.1.1.2. When the primary or alternate AOC is inoperative, the JFACC may direct an E-3 to continue to manage tactical air operations until the AOC becomes operational. Under this condition, additional E-3 responsibilities may include voice coordination with Army, Navy, Allied units, and Air Support Operations Centers (ASOCs).

5.1.2. E-3 NORAD Missions. The NORAD strategic air defense mission covers three roles: air sovereignty, tactical warning, and atmospheric defense. Air sovereignty is the peacetime policing of the combined US/Canadian sovereign airspaces to ensure that all air traffic using the airspace complies with national regulations. The second role of tactical warning includes detecting, characterizing, and assessing the potential threat. The third role is the wartime role of atmospheric air defense against an enemy threat or attack. NORAD performs these roles by integrating a variety of sensor equipment, communications, aircraft, and facilities.

5.1.3. E-3 Counterdrug Missions. The E-3 counterdrug (CD) mission is to assist national agencies in interdiction of suspected drug traffic IAW command directives.

5.1.4. Joint Tactical Air Operations (JTAO). Integration and coordination among all C2 units deployed to a particular theater is paramount for effective JTAO operations. JTAO operations are defined in the *JTAO Procedural Handbook*. E-3 crews must be fully trained to execute the Air Tasking Order (ATO), Airspace Control Order (ACO), and OPTASKLINK in a joint environment to ensure proper force management and control of weapons systems. The entire system is dependent upon the effective use and control of data links. E-3 crews must understand their role within the joint data network and how their data can both aid and hamper JTAO. CJCSM 3115.01, *Joint Data Networks*, outlines the duties of the Joint Information Control Cell (JICC) and how the multi-link network is to be administered. E-3 crews will operate data link equipment IAW CJCSM 6120.01C, *Joint Multi-TADIL Operating Procedures*, and the written guidance of the Joint Interface Control Officer (i.e. OPTASKLINK, OPTASK ID Supp, TECHOPDAT). During missions, the crew will adhere to the directions of the joint, regional, or sector interface control officers (J/R/SICO). Coordination will be performed on the assigned interface control net (ICN)/data link coordination net (DCN) and track supervision nets (TSN). All E-3 crewmembers participating on these nets must be familiar with directed net procedures and follow the directions of the net control station (NECOS).

5.2. Responsibilities:

5.2.1. Battle Management. The onboard battle staff, in conjunction with the E-3 MCC, performs the battle management function.

5.2.1.1. Battle Staff/Airborne Command Element (ACE) Team. The Battle Staff/ACE Team is responsible for the total assigned battle management function and will:

5.2.1.1.1. Execute CINC's intent and serve as onboard theater ROE expert for tasked mission.

5.2.1.1.2. Determine priorities and authorize the reallocation/distribution of the assets assigned.

5.2.1.1.3. Establish/maintain contact and coordinate with appropriate commanders.

5.2.1.1.4. Recommend changes to the mission as necessary to maintain continuous coverage of the assigned AOR.

5.2.1.1.5. Receive, interpret, and disseminate information to appropriate battle staff and region personnel.

5.2.1.2. Mission Crew Commander. The MCC is responsible to the appropriate commander (whether onboard as part of the battle staff or on the ground) for the safe, efficient and successful conduct of the E-3s air battle. The MCC is responsible for the leadership, management, supervision, and training of the mission crew. The MCC will :

5.2.1.2.1. Notify the AC and mission crew of all situations that could adversely affect safety of flight operations or mission accomplishment.

5.2.1.2.2. Execute commanders directives and perform battle staff duties as required, to include transmitting, receiving, authenticating and executing command messages.

5.2.1.2.3. Responsible to the appropriate command authorities for the application and execution of applicable operations orders (OPORDs), OPLANS, ATO, OPTASKLINK, SPINS, Rules of Engagement (ROE) and other theater specific command directives involving E-3 employment.

5.2.1.2.4. Ensure the mission crew is thoroughly briefed and prepared to meet mission tasking.

5.2.1.2.5. Have a thorough understanding of the capabilities and tactics of hostile and friendly forces.

5.2.1.2.6. Ensure mission systems are configured and the database information is current and correct to meet mission tasking. Supervise the communications, data processing and display, and sensor system functions to ensure effective support of mission objectives.

5.2.1.2.7. Coordinate and manage the air battle with appropriate command authorities and direct tactical action IAW theater ROE.

5.2.1.2.8. Coordinate with the AC on tactical positioning of the E-3 to ensure safe and efficient mission execution.

5.2.1.2.9. Manage the orderly transfer of database information and station responsibility.

5.2.1.2.9.1. Ops normal can be declared when all mission systems required to accomplish the assigned mission are operating normally.

5.2.1.2.9.2. On station can be declared when all mission systems required to accomplish the assigned mission are operational, and surveillance, weapons and technician teams have completed their minimum station assumption requirements.

5.2.1.2.9.3. Notify the appropriate command authorities of the “ops normal/on station” calls, and other theater specific calls as specified by directives and any deviations from mission tasking.

5.2.1.2.10. Supervise the SD, ASO, ECO and technicians to ensure safe and effective mission accomplishment.

5.2.1.2.11. Determine, supervise and manage the communications, data processing and display, and sensor requirements to ensure effective support of mission tasking .

5.2.1.2.12. Thoroughly assess equipment malfunctions and determine impact on the assigned mission. If the malfunction cannot be corrected and will impact the assigned mission, coordinate with maintenance as required. Develop a work around plan, if practical, and notify the appropriate command authorities of any limitations as soon as possible. If the work around plan includes the continued operation of malfunctioning mission equipment, have the appropriate technician(s) identify all pertinent Notes, Warnings and Cautions which affect the equipment in question. Coordinate with the AC to assess the risk of continued use against safety and integrity of the aircraft, and mission accomplishment. The AC is the final authority and is responsible for the safety of the aircraft.

5.2.1.2.13. Approve/coordinate downtime for scheduled/unscheduled maintenance.

5.2.1.2.14. Debrief the crew, appropriate command authorities and unit agencies as required by theater directives.

5.2.1.2.15. Ensure all required mission forms/reports are completed and turned in to the appropriate agencies/offices as required.

5.2.2. Surveillance. The ASO, the Senior Surveillance Technician (SST), and the Air Surveillance Technician (AST) perform the surveillance functions. The surveillance section is led by the ASO and

is responsible for the detection, tracking, identification, height measurement, display, telling and recoding/documenting of data on aircraft within the AOR. The ASO will also function as an interface control officer (ICO) for the E-3 and implement multi-link operations in accordance with directions and guidance from the JICO, CJCSM 6120.01C and CJCSM 3115.01. The surveillance section is comprised of an SST and ASTs. SSTs will manage the multi-link operations. Duties also include extracting data from OPORDS, OPLANS, and other theater and command directives for E-3 employment. In the absence of the ECO, the ASO can download Passive Detection System (PDS) .

5.2.2.1. Air Surveillance Officer. The ASO is responsible to the MCC for all surveillance functions. The ASO will :

5.2.2.1.1. Monitor and direct the accurate collection, display, and dissemination of surveillance data .

5.2.2.1.2. Direct and/or coordinate the identification of all observed activity within designated areas .

5.2.2.1.3. Analyze the surveillance situation and advise the MCC of surveillance capabilities.

5.2.2.1.4. Notify the MCC whenever Electronic Attack (EA) is experienced and coordinate Electronic Protection (EP) actions.

5.2.2.1.5. Notify the MCC and SD of any suspected emergency IFF/SIF returns or triangular distress patterns.

5.2.2.1.6. Document all radar/IFF electronic combat training events on applicable forms and forward them to the squadron Weapons and Tactics office.

5.2.2.1.7. In conjunction with the SST, ccoordinate with external agencies to ensure accurate multi-link operations IAW joint, regional or sector interface control officer (JICO) guidance. The ASO will coordinate any datalink modifications (filters, duties, ID usage) with the JICO to ensure there are no impacts to the link architecture. Concurrent operations will not be used unless specifically mentioned in the OPTASKLINK or directed by the JICO.

5.2.2.1.7.1. Implement changes in interface configuration as directed.

5.2.2.1.7.2. Implement data link filters as stated in the OPTASKLINK or TACHOPDAT. Any changes to filters must be approved by the JICO.

5.2.2.1.7.3. Utilize the ICN and DCN to coordinate with J/R/SICO and other multi-link participants using directed net procedures if required by the NECOS.

5.2.2.1.7.4. Monitor track exchange (surveillance, weapons, and ES) and coordinate with SST, SD, and ECO if required.

5.2.2.1.7.5. Provide recommendations to JICO for data link changes. Forward changes to E-3 initial exchange requirements (IERS) to the JICO through the appropriate agency (MPT, OSXR, OSOE, etc.).

5.2.2.1.8. Assign and supervise SST and AST responsibilities.

5.2.2.1.9. Monitor and maintain sensor quality for mission duration.

5.2.2.1.10. Ensure surveillance team members receive maximum training from available resources including simulation (SIM).

5.2.2.2. Senior Surveillance Technician. The SST is a supervisory position responsible to the ASO and will provide assistance as required. The SST will:

5.2.2.2.1. Supervise the detection, tracking, reporting, identification, and recording of surveillance data .

5.2.2.2.2. Ensure the completion of AST duties.

5.2.2.2.3. Monitor sensors in the assigned areas, notify the ASO of any unusual presentations.

5.2.2.2.4. Coordinate with the ASO/CSO or CT, as required, in the establishment and operation of data links .

5.2.2.2.5. Notify the ASO of any suspected emergency IFF/SIF returns or triangular distress patterns.

5.2.2.3. Air Surveillance Technician. The AST is responsible for surveillance functions as directed by the ASO/SST. The AST will:

5.2.2.3.1. Initiate on all data trails appearing within the assigned AOR and ensure continuity of tracking .

5.2.2.3.2. Upon receipt of voice told tracks, monitor telling source and enter that track data into the computer. On such tracks, monitor sensor data that may correlate and take appropriate action to effect correlation .

5.2.2.3.3. Tell tracks.

5.2.2.3.4. Notify the ASO/SST of all unusual console presentations (e.g. EA, electro-magnetic interference (EMI), erroneous computer generated data, etc.). Reporting format will include number and type of strobe(s), effect on Radar Electronic Counter Measures (ECM), bearing, power level, and time of occurrence.

5.2.2.3.5. Notify the ASO/SST of any suspected emergency IFF/SIF returns or triangular distress patterns .

5.2.2.3.6. Initiate and maintain passive tracking when directed by the ASO/SST.

5.2.2.3.7. Assist the ASO/SST with flight plans and other identification functions.

5.2.3. Electronic Support Cell. The Electronic Support Cell (ESC) consists of the ECO and the Broadcast Intel Operator (BIO). The ESC analyzes Electronic Support (ES) data from on-board and off-board sensors, fuses that data with other on-board data/information, then disseminates a comprehensive ES picture both internally (on-board the E-3) and externally (via data links and communications nets).

5.2.3.1. Electronic Combat Officer (ECO). The ECO is responsible to the MCC for all activities of the Electronic Support Cell. The ECO will:

5.2.3.1.1. Monitor the accurate collection, display and dissemination of ES data.

5.2.3.1.2. Analyze the ES situation and advise the MCC of ES data.

5.2.3.1.3. Locate, report and log all emitters of interest.

5.2.3.1.4. Coordinate with external agencies to ensure the accuracy of ES data.

5.2.3.1.5. Estimate and/or predict the capabilities of hostile forces and friendly forces relative to the Electronic Order of Battle (EOB).

5.2.3.1.6. Direct and/or coordinate the ES identification of all observed activity within designated areas .

5.2.4. Weapons. The Senior Director (SD), Air Weapons Officer (AWO) and Weapons Directors (WD) perform the weapons function. They are responsible for the direction, monitoring, and flight following of assigned aircraft during tactical and air refueling missions, both operational and training. They are responsible for extracting data from OPORDS, OPLANS, and other theater and command directives for E-3 employment and weapons mission execution.

5.2.4.1. Senior Director. The SD is responsible to the MCC for conduct of the air battle and for the control of all assigned aircraft and weapons systems. The SD will:

5.2.4.1.1. Supervise all AWO/WD activities.

5.2.4.1.2. Maintain data on friendly and enemy orders of battle.

5.2.4.1.3. Estimate and/or predict the capabilities of hostile forces, develop plan(s) which organize friendly counter forces, and defeat/negate the threat.

5.2.4.1.4. Maintain current and accurate tactical situation, weapons, weather, airbase status, and other situational information.

5.2.4.1.5. Coordinate the air battle with appropriate agencies.

5.2.4.1.6. Direct the pairing of weapons against hostile targets.

5.2.4.1.7. Coordinate directly with the ASO and ECO to obtain surveillance support and optimum sensor quality .

5.2.4.1.8. Coordinate with other agencies to ensure the accomplishment of all assigned weapons missions .

5.2.4.1.9. Notify the MCC and ASO of any suspected emergency IFF/SIF returns or triangular distress patterns .

5.2.4.1.10. Ensure weapons team members receive maximum training from available resources including simulation (SIM).

5.2.4.1.11. Develop and maintain the communications worksheet for the weapons section. Responsibility for the master communications worksheet may also be the responsibility of the SD if delegated by the MCC.

5.2.4.2. Air Weapons Officer/Weapons Director. The AWO/WD is responsible to the SD for the control and safe regulation of air traffic for all assigned missions. The AWO/WD will:

5.2.4.2.1. Locate, identify, and track aircraft assigned for control.

5.2.4.2.2. Control aircraft against assigned targets.

5.2.4.2.3. Ensure orderly and expeditious recovery of assigned aircraft.

5.2.4.2.4. Coordinate with internal and external agencies, as applicable, on matters pertaining to flight safety/mission accomplishment.

5.2.4.2.5. Notify the SD of any suspected emergency IFF/SIF returns or triangular distress patterns.

5.2.5. Communications. The communications function is performed by the Communications Technician (CT) and the Communications Systems Operator (CSO) .

5.2.5.1. The CT is responsible to the AC/MCC for the proper maintenance and operation of flight and mission crew communications and related equipment. The CT will:

5.2.5.1.1. Evaluate equipment status of the Communications Functional Group (CFG) and advise the MCC of its capabilities to support mission requirements.

5.2.5.1.2. During deployment or dispersed base operations, the CT will assist ground based personnel with maintenance activities when required or requested. When ground based maintenance personnel are not available, the CT is responsible for organizational level maintenance on the communications group and its related subsystems utilizing the available technical data, and the Readiness Spares Package (RSP) as applicable.

5.2.5.1.3. Configure, operate and monitor JTIDS equipment and software.

5.2.5.2. The CSO is responsible to the AC/MCC for proper programming management and operation of flight and mission crew communications systems. The CSO will :

5.2.5.2.1. Tune, configure, and operate clear and secure voice communications systems and communication nets to support mission requirements.

5.2.5.2.2. Configure and operate data link equipment and software.

5.2.5.2.3. Perform frequency management; recommend and make required communications changes.

5.2.5.2.4. Compile and transmit required inflight and position reports to appropriate facilities.

5.2.5.2.5. Coordinate, obtain, use, and control COMSEC material and equipment.

5.2.6. Computer Display Maintenance Technician (CDMT) and Airborne Radar Technician (ART). The CDMT performs Data Processing and Display functions. The ART performs Sensor Systems functions.

5.2.6.1. Data Processing and Display. The data processing and display function is performed by the CDMT. The CDMT is responsible to the MCC for the operation, monitoring, and limited inflight maintenance of the Data Processing, Data Display, Onboard Test Monitor and Maintenance functional groups and Electronic Support Measures Group (ESMG). The CDMT will :

5.2.6.1.1. Perform loading of the Data Processing System, auxiliary system(s), and monitor the performance of the Data Processing System, Data Display System, auxiliary system(s). The CDMT will also perform Onboard Test Monitor and Maintenance Groups using fault indications, ESM, and software messages displayed at the Computer Technician console.

5.2.6.1.2. Monitor the status of mission avionics equipment tested by the computer for efficient operation .

5.2.6.1.3. Service the Data Processing peripheral equipment.

5.2.6.1.4. Perform diagnostic programs.

5.2.6.1.5. Perform inflight troubleshooting and fault isolation.

5.2.6.1.6. Perform replacement of modules, parts, and inflight maintenance repairs as required.

5.2.6.1.7. Perform utilities programs.

5.2.6.1.8. During deployment or dispersed base operations, the CDMT will assist ground based personnel with maintenance activities when required or requested. When ground based personnel are not available, the CDMT is responsible for organizational level maintenance on the Data Processing Functional Group, Data Display Functional Group, Onboard Test Monitor Group and the Control Power Supply (CPS) and its related subsystems using the available technical data and RSP as applicable.

5.2.6.2. Sensor Systems. The ART is responsible to the MCC for the operation and maintenance of the radar and IFF systems and their subsystems. The ART will:

5.2.6.2.1. Initiate and monitor the Surveillance Radar Functional Systems and Identification Functional Systems.

5.2.6.2.2. Perform radar equipment test (Fault Isolation) routines and other checkouts.

5.2.6.2.3. Troubleshoot malfunctions in sensor systems and repair or replace equipment as required.

5.2.6.2.4. Monitor surveillance equipment operating performance levels.

5.2.6.2.5. Initiate and monitor associated test equipment to optimize performance of sensor systems.

5.2.6.2.6. During deployment or dispersed base operations, the ART will assist ground based personnel with maintenance activities when required or requested. When ground based maintenance personnel are not available, the ART is responsible for organizational level maintenance on the radar and IFF systems and their related subsystems utilizing the available technical data and RSP as applicable.

5.2.6.2.7. Coordinate with the ASO on radar operating parameters (i.e. dedicated time test azimuth, second-time-around-thresholds, etc.), and on detection, analysis, and response to electronic attack .

5.3. Operational Procedures:

5.3.1. Aircraft Mission Systems History Log Book. Maintain a history log book for each aircraft. Units will develop history log book procedures and ensure log books are readily available.

5.3.2. Equipment Malfunctions. The MCC, after coordination with the AC on equipment issues which affect aircraft systems, must approve continued operations of malfunctioning mission equipment that would affect the mission. The MCC will evaluate the impact of using degraded equipment against the mission tasking and the inability to meet that tasking.

5.3.3. Air Surveillance Procedures:

5.3.3.1. Coordination. The ASO will coordinate with the SD, ECO, and MCC to ensure all activity is conducted on an appropriate map. Coordinate Command and Control Coordinate System (CCCS) origin changes with the MCC and CDMT prior to taking the switch action.

5.3.3.2. Briefings. The ASO/SST will accomplish a surveillance briefing on mission planning day that will cover surveillance information and contracts applicable to the entire mission and/or flight crew. The ASO will also accomplish a surveillance specialized briefing prior to assuming station. As a minimum, this briefing will include surveillance areas not covered in previous briefings and any areas needing extra emphasis, such as individual taskings, surveillance contracts, ROE, symbology and tracking, identification plan, and contingency/emergency duties .

5.3.3.3. Sensor Management/Procedures. Prior to assuming station, the ASO will perform sensor checks to determine the optimum radar/IFF settings for the mission. The ASO will brief the MCC on the results of the checks and the final radar setup. Sensor check procedures include:

5.3.3.3.1. IFF Sensor Check. Perform a systematic checkout of the IFF, to include all operational R/T's as soon as it becomes available. If equipment malfunctions, the ASO will accomplish an additional check once the unit is back on line. If a previously unchecked R/T unit comes on line, the ASO will again accomplish an additional check.. As a minimum, the ASO will check:

5.3.3.3.1.1. Mode IV Test. Perform a mode IV loop test prior to declaring the IFF operational.

5.3.3.3.1.2. Maximum Range. Measure the maximum range of the IFF by determining the range of an IFF sensor return with a consistent (three out of seven returns) data trail.

5.3.3.3.1.3. IFF Jitter. Check in all quadrants, as close as possible to, but not beyond, 250 NM from the E-3. Measure jitter as sideways displacement of returns from a straight-line path. Normally jitter up to 3 NM is acceptable.

5.3.3.3.1.4. Quality. The overall quality of the IFF will be determined by checking consistency of data trails, and when radar becomes available, the mileage difference between the IFF and radar sensor returns. Normally, returns within 2 NM are acceptable. Accomplish this check within a radius of 250 miles from the E-3.

5.3.3.3.1.5. Resolution of IFF Overloads. The ASO will monitor IFF counts and make necessary adjustments to resolve overload conditions and minimize the loss of IFF data.

5.3.3.3.2. Radar Sensor Check. Time permitting, the ASO will check as many RF sets as possible, and select a primary and secondary RF set (preferably not in the same chain). The ASO will use identical radar tabular display settings for each RF set checked for accurate comparison. Radar mode will include both the Doppler and BTH radars. A sensor quality check must be made when established in the orbit area if a checkout was made prior to arrival to the orbit area. The radar check will include:

5.3.3.3.2.1. Doppler/Beyond the Horizon (BTH) Maximum Range. Determine the maximum doppler range from the situation indicator display (SID) presentation using data trails with a minimum 40% blip-scan ratio (3 out of 7 scans have radar returns). A single data point, present or history, may be used to determine the maximum BTH range from the SID presentation.

5.3.3.3.2.2. Quality. Radar quality is determined by the percentage of all IFF returns within a 250 NM radius of the E-3 that have consistent discernible radar data trails. In addition, consider the overall consistency of the radar presentation. Use the following criteria to assess the overall quality of the radar :

5.3.3.3.2.2.1. Good. Greater than 50%.

5.3.3.3.2.2.2. Fair. Between 30 to 50%.

5.3.3.3.2.2.3. Poor. Less than 30%.

5.3.3.3.2.3. System Counts**.** On applicable form, log the Doppler, BTH, and Mode 3 counts for comparison of radar frequencies. Time of day, operating location, traffic density areas, and radar mode of operation may significantly affect the ratio of these figures .

5.3.3.3.2.4. Sensor Re-Check Procedures. Once the sensors have been initially checked and declared operational, the ASO is *not* required to re-accomplish a full sensor check unless the applicable sensor system is powered down or if the ART accomplishes a Fault Isolation Test (FIT) on the radar system, i.e. after QC. In circumstances such as post-A/R where sensors are transferred but not powered down, the ASO will, at minimum, accomplish a quality check of radar and IFF systems prior to declaring them operational .

5.3.3.3.3. Radar Setup. The ASO must consider the effects of the E-3 flight parameters on sensor performance and attempt to optimize checkout within these constraints. The assessment of overall air picture quality will be the primary factor in determining the optimum RF set.

5.3.3.3.3.1. After selecting the optimum RF set, the ASO will declare the radar operational.

5.3.3.3.3.2. When multiple E-3 flights operate in an area, the ASO will perform frequency deconfliction as required.

5.3.3.3.3.3. The ECO will perform a systematic checkout of the Passive Detection System (PDS) and brief the ASO on the results of checks. If checkout is satisfactory, PDS will be declared operational.

5.3.3.4. Data Link Procedures and Operation. Data link is the primary means of passing E-3 information. Establish data links according to CJCSM 6120.01C, *Joint Multi-Tactical Data Link Operating Procedures,* for the Joint Tactical Information Distribution System (JTIDS) Network Library for JTIDS and TADIL A during CONUS operations. Establish data link operations outside the CONUS according to local theater directives and the OPTASKLINK .

5.3.3.5. Assuming Station. ASO will inform MCC of station assumption requirements not yet completed:

5.3.3.5.1. Conduct data base checks as appropriate.

5.3.3.5.2. IFF configured for mission use.

5.3.3.5.3. Configure the radar settings and optimize sensors for maximum detection while maintaining air-picture quality.

5.3.3.5.4. Track initiation on all data trails within the assigned AOR(s).

5.3.3.5.5. Initiate contact with ground control agencies.

5.3.3.5.6. Operational data links(s).

5.3.3.5.7. ESS placed in the mission mode, as required.

5.3.3.5.8. PDS Operational. The ASO is permitted to download PDS when an ECO is not present.

5.3.3.6. Voice Tell and Recording Procedures. When the E-3 is in an environment with units not capable of data link interface, use the following voice tell and recording procedures:

5.3.3.6.1. The E-3 will voice tell priority one, two, and three tracks unless the receiving agency directs cease tell. Tell all other priorities on request only. For this purpose, the following priorities have been established :

5.3.3.6.1.1. Priority One. Hostile/Faker.

5.3.3.6.1.2. Priority Two. Unknown/Pending.

5.3.3.6.1.3. Priority Three. Emergencies.

5.3.3.6.1.4. Priority Four. Defensive Counter Air.

5.3.3.6.1.5. Priority Five. VIP Flights.

5.3.3.6.1.6. Priority Six. Special Missions.

5.3.3.6.1.7. Priority Seven. Other tracks as directed by the receiving agency, (for example, Neutralized Fakers). Live tracks have priority over simulated tracks .

5.3.3.6.2. Voice tell will normally be in United States Message Text Format (USMTF) TRKREP format. When it is impossible for the receiving agency to accept tell according to USMTF, use a format agreed upon by both agencies.

5.3.3.7. Electronic Combat (EC) Procedures. The ASO will monitor/coordinate Electronic Protection (EP) actions. Use the following procedures :

5.3.3.7.1. The ASO, ECO and ART will coordinate on any unusual sensor activity to determine whether the source is external or internal and type of interface if able. If no explanation can be determined and the source is external, submit an Air Force Spectrum Interference Reporting System (AFSIRS) report.

5.3.3.7.2. Make every effort in an Electronic Attack (EA) environment to obtain active data on all EA targets. Whenever possible, use cooperative passive tracking. If cooperative support is not available, use self-passive tracking .

5.3.3.7.3. When self-triangulating, to determine if one of several previously active tracking returns is a suspected EA emitter, the AST will extrapolate the suspected track on its last known heading, speed and altitude, before initiating a passive track. If two tracks are used, the ASO will coordinate with the MCC and SD to ensure proper weapons commitment.

5.3.3.7.4. The ASO will keep the MCC and SD advised on status of passive tracks. When the ASO is confident that the passive track has correlated with the jammer’s location, notify the SD that the track has “stabilized” and enable display to weapons consoles. In the event of burn-through, the ASO, in coordination with the MCC and IAW ROE, may “validate” the track as a jammer and associate the symbology with active data.

5.3.3.8. Identification. When the E-3 is granted ID authority, the ASO will use all available capabilities and resources to ID tracks within its AOR according to the theater ID Matrix. The MCC will retain hostile declaration authority.

5.3.4. Weapons Procedures:

5.3.4.1. Station Assumption. Prior to assuming station, the SD will:

5.3.4.1.1. Contact FAA/Air Route Traffic Control Center (ARTCC) or ground monitor/control authority, and complete a sensor correlation check as required .

5.3.4.1.2. Check all weapons assigned radio frequencies for usability.

5.3.4.1.3. Check data base accuracy.

5.3.4.2. On-Station Procedures. Procedures will be according to the operational procedures contained in this instruction and specific mission directives .

5.3.4.3. Off-Station Procedures. The SD will compile controlled aircraft mission totals and furnish this data to the MCC. The SD will pass totals to the ground monitor if requested/directed .

5.3.4.4. SD Control Procedures. The SD may control aircraft during a mission after coordination with the MCC and when simultaneous missions are not in progress.

5.3.4.5. Handoff Procedures. Handoff procedures IAW applicable FAA Letters of Agreement. The SD or a designated AWO/WD will monitor the handoff frequency at all times when performing station assumption duties and while on station .

5.3.4.6. Controlled Aircraft Emergency Procedures. For aircraft with in-flight emergencies, the SD/AWO/WD performing the handoff will use the word “Emergency” at the beginning and ending of transmissions to the recovery agency. In the event of an emergency being declared by an aircraft under E-3 control, the AWO/WD will refer to their Aircrew Aids, “Controlled Aircraft Emergency Procedures.”

5.3.4.7. Control Procedures. On-station control procedures will be IAW AFI 11-214, *Aircrew and Weapons Director Procedures for Air Operations*.

5.3.4.8. Airspace. Use of airspace will be IAW Air Traffic Control Management/Airspace Control directives.

5.3.4.9. Distressed Aircraft. Report any suspected or triangular distress patterns to the SD.

5.3.4.10. Symbology. During all operations, AWO/WDs will ensure symbology and sensor data of controlled aircraft are within 2 NM of each other. Weapons pairings to Combat Air Patrol (CAP), air-to-air intercept, and ground targets are transmitted to net participants via data link.

5.3.5. Communications Procedures:

5.3.5.1. Radio Procedures. Adhere to communications discipline at all times. All crewmembers will use proper International Civil Aviation Organization (ICAO) phrases, phonetic alphabet, and R/T procedures outlined in ACP 121, US Sup 2 (*Communications Instructions, General-Air-Ground*).

5.3.5.2. Priority of Message Transmissions. The E-3 aircrew, while in flight, will transmit messages according to the following priority :

5.3.5.2.1. Flight Safety.

5.3.5.2.2. Command and Control Information.

5.3.5.2.3. Flight Regularity.

5.3.5.3. Phone Patches. Units will establish phone patch procedures in their local chapter.

5.3.5.4. Mode 2 IFF/SIF Procedures. The CSO will obtain the Mode 2 code settings and Mode 4 key list when receipting for the classified documents. The CT will be responsible for inserting, verifying, and zeroizing the Mode 2 setting and Mode 4 as required by local procedures.

5.3.5.5. Call Signs. Always use the aircraft callsign when transmitting messages of Flight Safety, aircraft movement, and radio calls required by this instruction. Mission crewmembers will use the mission crew call sign when communicating with the respective controlling or monitoring agency, aircraft under their control, or as fragged/briefed. The CSO will brief crewmembers on call signs to use when providing alternate communications.

5.3.5.6. UHF/VHF Guard Monitoring Procedures. The MCC will ensure the mission crew monitors VHF and UHF guard frequencies. The MCC, SD, ECO, and AWO/WDs will have UHF guard receiver/transmitter programmed to their consoles. While aircraft are under control by the mission crew, the SD will designate at least one weapons crewmember to monitor UHF guard. The ASO, SST, and ASTs will have VHF guard programmed to their consoles. The ASO will designate at least one surveillance crewmember to monitor VHF guard while the E-3 is on station.

5.3.6. Mission Crew Intercom Procedures:

5.3.6.1. The primary means of coordination for the mission crew will be via the programmed mission nets.

5.3.6.1.1. Coordinate net assignments/deviations through the MCC.

5.3.6.1.2. Maintain strict net discipline. Limit conversation to operational matters.

5.3.6.2. Use the ADS selective intercom system for information that is unclassified, lengthy in nature, and/or person-to-person conversations.

5.3.6.3. The PA system is for use in emergencies and practice emergencies. Except for emergency checklist items, use of the PA by mission crew is restricted to the MCC .

5.3.7. Special Interest Track Procedures:

5.3.7.1. A special interest track is any track that requires priority handling by the mission crew.

5.3.7.2. The E-3 will not depart orbit or working area to continue monitoring the special interest track unless directed by the command authority exercising E-3 TACON. Any instructions that are directive for the E-3 (i.e., leave/move orbit, changes in level of decentralization, etc.) will be authenticated by the MCC/BDT.

5.3.7.3. The MCC will:

5.3.7.3.1. Ensure the ASO assigns tracking responsibilities for the special interest track.

5.3.7.3.2. Ensure the SD monitors the special interest track for possible intercept actions.

5.3.7.3.3. Coordinate with the ASO and flight crew to maintain the special interest track within the E-3 surveillance limits (orbit location).

5.3.7.3.4. Coordinate E-3 airspace changes (orbit location) with the flight crew, as required.

5.3.7.3.5. Ensure the ECO monitors the special interest track for possible ID correlation.

5.3.7.4. The ASO will:

5.3.7.4.1. Give priority attention to the special interest track and assign it to an AST as a specific responsibility .

5.3.7.4.2. Ensure the AST places the track in debriefing status, logs the time, track number, and ID on the appropriate forms.

5.3.7.5. The SD will:

5.3.7.5.1. Monitor the progress of the special interest track and conduct any tactical action on the track as directed.

5.3.7.5.2. Scramble and/or direct aircraft for intercept as directed/necessary.

5.3.7.5.3. After the accomplishment of the intercept, inform the MCC/ground monitor facility of any required information.

5.3.7.5.4. Coordinate with the proper ground unit for recovery of the interceptors.

5.3.7.6. The ECO will monitor the special interest track and make every effort to correlate all electronic signals eminating from the track. Hard copy all Augmented Report TDs for emitters correlated to the track. If an ID can be derived from the correlated emitters this information will be passed to the ASO, SD, and MCC.

5.3.8. Sensor Correlation:

5.3.8.1. If control of aircraft is anticipated, accomplish a weapons correlation check prior to assuming station if required by LOA. If the E-3 mission is surveillance only, the surveillance section will perform the check with the appropriate automated/manual tell agency(ies) .

5.3.8.2. Perform an IFF only correlation check if:

5.3.8.2.1. The ASO subsequently correlates IFF to radar sensor returns, or,

5.3.8.2.2. IFF only on-station operations are authorized according to this instruction and theater operating instructions .

5.3.8.3. When operating as an military radar unit (MRU) in CONUS, Alaska, or Hawaii, and control of aircraft is anticipated, correlation procedures will be according to FAA Handbook 7610.4H, *Special Military Operations*.

5.3.8.4. Coordinate procedures with the responsible MRU prior to assuming station when operating as an Airborne Radar Unit (ARU) .

5.3.8.5. When operating in Canada, the E-3 will comply with the DOT/DND agreement (short title, “AWACS Agreement”) between Director General Air Doctrine and Operations Department National Defense, and Director Air Traffic Services Department of Transportation.

5.3.8.6. The following procedures apply to sensor correlation checks required by surveillance:

5.3.8.6.1. Minimum of two tracks within the Air Defense Identification Zone (ADIZ), preferably in a non-congested area .

5.3.8.6.2. Voice tell format will include the track number, coordinates, and Mode 3 squawk (if possible). Tracks used must be within 3 nautical miles or less to be considered a good sensor correlation.

5.3.8.6.3. Successful data link correlation checks could be used instead of voice tell checks due to accurate real-time data being passed between both agencies.

5.3.9. Electronic Support Procedures.

5.3.9.1. Coordination. The ECO will coordinate with the MCC, ASO, and SD to ensure PDS is loaded with an appropriate database.

5.3.9.2. Sensor Management Procedures**.** Prior to assuming station, the ECO will perform checks on PDS and BI to determine optimal sensor set-up. The ECO will brief the MCC on the results of these checks.

5.3.9.2.1. PDS. At a minimum, the ECO will check:

5.3.9.2.1.1. Reception in Frequency Range. Check to ensure 360-degree reception of signals within all three bands: low, medium and high. This is a subjective check, but there should be several indications within each band on different azimuths.

5.3.9.2.1.2. Triangulation. Triangulation of a known emitter (like an ATC radar at a civil airport) should be conducted. Once the triangulation reaches "monitor status," check the location of the symbology against the known location of the radar.

5.3.9.2.1.3. Overload Management. Evaluate any reported overloads and correct as necessary. Overload conditions that cannot be resolved might indicate internal interference and should be remedied by filtering as needed.

5.3.9.2.2. Broadcast Intelligence. The BI system does not require a sensor check out, but software filters do have to be set. Prior to calling BI operational, ensure that the system is receiving data, and then set all filters as appropriate for the threat/activity.

5.3.9.3. Data Link Procedures. The ECO should coordinate with the ASO/SST to ensure PDS data link filters are set correctly. The ECO will be responsible for selecting specific emitters to force tell during the mission.

5.3.9.4. Reporting Procedures. Reporting procedures will be IAW AFTTP 3-1 Vol 15, Chapter 4.

RONALD E. KEYS, Lt General, USAF
DCS/Air & Space Operations

Attachment 1

GLOSSARY OF REFERENCES AND SUPPORTING INFORMATION

References

CJCSM 3115.01, *Joint Data Networks*

CJCSM 6120.01C, *Joint Multi-Tactical Data Link Operating Procedures*

AFPD 11-2, *Aircraft Rules and Procedures*

AFPD 11-4, *Aviation Service*

AFI 11-202V3, *General Flight Rules*

AFI 11-214, *Aircrew and Weapons Director Procedures for Air Operations*

AFI 11-401, *Aviation Management*

JTAO Procedural Handbook

ACP 121, US Sup 2 (*Communications Instructions, General-Air-Ground*).

AFTTP 3-1 Vol 15, *E-3 Weapons and Tactics*

AFI 31-101, *The Air Force Installation Security Program*

AFI 33-360V1, *Publications Management Program*

AFI 37-138, *Records Disposition—Procedures and Responsibilities*

AFMAN 11-217 *Instrument Flight Procedures*

ACCI 21-101, *Objective Wing Aircraft Maintenance* (superseded ACCI 21-166)

T.O. 1-1C-1-27, *E-3 Air Refueling Procedures With KC-135 and KC-10*

T.O. 1E-3A-1-1, *Flight Manual, USAF Series E3B and E3C Aircraft*

T.O. 1E-3A-1-1*, Flight Manual Performance, USAF Series E3B and E3C Aircraft*.

ACP 121, US Sup 2, *Communications Instructions, General-Air-Ground*

FAA Handbook 7610.4H, *Special Military Operations*

Abbreviations and Acronyms

AACS—Airborne Air Control Squadron

AC—Aircraft Commander (used interchangeably with Pilot)

ACC—Air Combat Command

ACE—Airborne Command Element

ACG—Air Control Group

ACO—Air Control Order

ADIZ—Air Defense Identification Zone

ADS—Audio Distribution System

AFA—Air Force Academy

AFB—Air Force Base

AFRC—Air Force Reserve Command

AFROTC—Air Force Reserve Officer Training Corps

AFSIRS—Air Force Spectrum Interface Reporting System

AFTO—Air Force Technical Order

AGL—Above Ground Level

AO—Area of Operation

AOC—Air Operations Center

AOR—Area of Responsibility

A/R—Air to Air Refueling

ARCP—Air Refueling Control Point

ARIP—Air Refueling Initiation Point

ARMS—Aviation Resourse Management System

ART—Airborne Radar Technician

ARTCC—Air Route Traffic Control Center

ARU—Airborne Radar Unit

ASO—Air Surveillance Officer

ASOC—Air Support Operations Center

AST—Air Surveillance Technician

ATC—Air Traffic Control

ATO—Air Tasking Order

AWACS—Airborne Warning and Control System

AWO—Air Weapons Officer

BDT—Battle Director Technician

BIO—Broadcast Intel Operator

BMC—Basic Mission Capable

BTH—Beyond the Horizon

CAMS—Computer Automated Maintenance System (CAMS)

CAP—Combat Air Patrol

CC—Commander

CCCS—Command and Control Coordinate System

CD—Counterdrug

CDMT—Computer Display Maintenance Technician

CDU—Control Display Units

CFG—Communications Functional Group

CINC—Commander in Chief

CMR—Combat Mission Ready

COG (CG)—Center of Gravity

CONUS—Continental United States

CP—Copilot

CPS/DMP—Control Power Supply/Diagnostic Maintenance Program

CRC—Control and Reporting Center

CSC—Central Security Control

CSG—Computer Support Group

CSO—Communications Systems Operator

CT—Communications Technician or Continuation Training

DETCO—Detachment Commander

DCN—Datalink Control Network

DH—Decision Height

DO—Director of Operations

DR—Dead Reckoning

DRU—Direct Reporting Unit

DV—Distinguished Visitor

EA/EP—Electronic Attack/Electronic Protect

EC—Electronic Combat

ECM—Electronic Countermeasures

ECO—Electronic Combat Officer

EGI—Embedded GPS INU

EMI—Electro-Magnetic Interference

EOB—Electronic Order of Battle

EPR—Exhaust Pressure Ratio

ES—Electronic Support

ESC—Electronic Support Cell

ESM—Electronic Support Measures

ESS—Electronic Support System

ETA—Estimated Time of Arrival

ETD—Estimated Time of Departure

FAA—Federal Aviation Administration

FAF—Final Approach Fix

FCT—Flight Crew Training

FE—Flight Engineer

FIT—Fault Isolation Test

FL—Flight Level

FLIP—Flight Information Publications

FOA—Field Operating Agency

FOD—Foreign Object Damage

FPM—Feet Per Minute

GINS—GPS Integrated Navigation System

GPS—Global Positioning System

GTACS—Ground Tactical Air Control System

HAT—Height Above Touchdown

HF—High Frequency

IAW—In Accordance With

ICAO—International Civil Aviation Organization

ICN—Interface Control Network

ID—Identification

IFF—Identification, Friend or Foe

IFR—Instrument Flight Rules

IMC—Instrument Meteorological Conditions

INS—Inertial Navigation System

INU—Inertial Navigation Unit

IP—Instructor Pilot (an “I” prefix designates an instructor in that crew position, i.e., IMCC)

JCS—Joint Chiefs of Staff

JFACC—Joint Force Air Component Commander

JICC—Joint Information Control Cell

JSTARS—Joint Surveillance Target Attack Radar System

JTAO—Joint Tactical Air Operations

JTIDS—Joint Tactical Information Distribution System

LAT—Latitude

LONG—Longitude

LOP—Line of Position

MAC—Mean Aerodynamic Chord

MAJCOM—Major Command

MAP—Missed Approach Point

MARSA—Military Assumes Responsibility for Separation of Aircraft

MCC—Mission Crew Commander

MCT—Mission Crew Training

MDA—Minimum Descent Altitude

MEL—Minimum Equipment List

MET—Mission End Time (AFRC only)

MRU—Military Radar Unit

MSL—Mean Sea Level

NAV—Navigator

NECOS—Net Control Station

NM—Nautical Mile

NOTAMS—Notices to Airmen System

NWRO—NORAD Weapons Resource Officer

OG—Operations Group

ONC—Operational Navigation Chart

OPCON—Operational Control

OPLAN—Operations Plan

OPORD—Operations Order

ORC—Operations Readiness Center

PA—Public Address

P-Sortie—Proficiency Sortie

PACAF—Pacific Air Forces

PDS—Passive Detection System

QC—Quality Control

RCR—Runway Condition Reading

RF—Radar Frequency

RNAV—Area Navigation

ROE—Rules of Engagement

RP-1—Readiness Posture One

RP-3—Readiness Posture Three

RP-15—Readiness Posture Fifteen

RSC—Runway Surface Condition

RSP—Readiness Spares Package

R/T—Recieve and Transmit

SD—Senior Director or Situational Display

SEFE—Standardization/Evaluation Flight Examiner

SID—Standard Instrument Departure or Situation Indicator Display

SIF—Selective Identification Feature

SIM—Simulator

SM—Statute Mile

SOF—Supervisor of Flying

SPINS—Special Instructions

SRT—Scheduled Return Time (AFRC only)

SST—Senior Surveillance Technician

STAR—Standard Terminal Arrival Route

TACAN—Tactical Air Navigation

TACON—Tactical Control

TACS—Theater Air Control System

TD—Tabular Display

TOLD—Take-Off and Landing Data

TRT—Take-Off Rated Thrust

TSN—Track Supervision Network

UHF—Ultra-High Frequency

USB—Upper Side Band

USMTF—United States Message Text Format

VDP—Visual Descent Point

VFR—Visual Flight Rules

VHF—Very High Frequency

VIP—Very Important Person

VMC—Visual Metrological Conditions

WD—Weapons Director

Terms

Aircrew—Use this term to describe the complete complement of personnel required to fly an operational mission. It composes both the flight crew and the mission crew.

Critical Phases of Flight—Critical phases of flight are takeoff, air refueling, any type of approach, landing, and any other maneuver listed in this instruction requiring IP/SEFE supervision .

Flight Crew—The flight crew is responsible for the safe ground and flight operations of the E-3 aircraft. It consists of Aircraft Commander (AC), Copilot (CP), Navigator (Nav), and Flight Engineer (FE). For purposes of this instruction, Flight Crew Training (FCT) personnel are considered flight crew members; however, contractor personnel will not occupy primary E-3 crew positions during critical phases of flight.

Instructor/Standardization Evaluation Flight Examiner (SEFE) Supervision—Instructor/SEFE supervision requires an instructor/SEFE who is qualified and current in the position and the maneuver that will be performed. Individuals not qualified or current in the aircraft, require instructor/SEFE supervision for the activity in which they are unqualified or noncurrent. For unqualified or noncurrent pilots, IP/SEFE supervision requires the IP/SEFE to be in one of the pilots' seats with immediate access to the controls while the maneuver is being performed. For all other crewmembers, instructor/SEFE supervision requires over-the-shoulder observation of the unqualified/non-current crewmember. During critical phases of flight, flight crew instructors/SEFEs are allowed to stand, all others will be at the discretion of the pilot-in-command.

Mission Crew—The mission crew consists of those individuals responsible for the command, control, surveillance, communications/electronic, and management functions, to include the control and monitoring of assigned aircraft, sensor management, internal and external communications management for mission operations, and onboard systems maintenance. It consists of the Mission Crew Commander (MCC), Senior Director (SD), Air Weapons Officer (AWO), Weapons Director(s) (WD), Air Surveillance Officer (ASO), Electronic Combat Officer (ECO), Senior Surveillance Technician (SST), Air Surveillance Technician(s) (AST), Computer Display Maintenance Technician (CDMT), Airborne Radar Technician (ART), Communications Systems Operator (CSO), and the Communications Technician (CT).

Mission End Time (MET)—(AFRC only) The scheduled day and time a flight crew is planned to return to home station from an exercise or deployment. The MET will be published in the monthly Operations Plan, rotation schedule, flying schedule, and/or operations order (OPORD), as necessary. The MET is the baseline for computing Scheduled Return Time**.**

NORAD Battle Staff—The battle staff assists the crew performing aerial operations within the NORAD area of operations (AO). The battle staff is responsible for managing the air battle and carrying out the

required command and control functions. It has the responsibility and authority, as directed by the appropriate commander, to ensure the most effective use of assigned resources to accomplish the mission. The Battle Director Technician(s) (BDT) are ACC/PACAF E-3 crewmembers specifically trained to support the NORAD mission. Supported commanders may also provide a NORAD Airborne Battle Commander (NABC) and NORAD Weapons Resource Officer (NWRO). PACAF/AFRC E-3 crewmembers will be trained and certified by local procedures using a command approved syllabus.

Operational Control (OPCON)—Transferable command authority that may be exercised by commanders at any echelon at or below the level of combatant command. Operational control is inherent in combatant capability (command authority). Operational control may be delegated and is the authority to perform those functions of command over subordinate forces involving organizing and employing commands and forces, assigning tasks, designating objectives, and giving authoritative direction necessary to accomplish the mission. Operational control includes authoritative direction over all aspects of military operations and joint training necessary to accomplish missions assigned to the command. Operational control should be exercised through the commanders of subordinate organizations. Normally this authority is exercised through subordinate joint force commanders and Service and/or functional component commanders. Operational control normally provides full authority to organize commands and forces and to employ those forces as the commander in operational control considers necessary to accomplish assigned missions. Operational control does not in and of itself include authoritative direction for logistics or matters of administration, discipline, internal organization, or unit training .

Operations Readiness Center (ORC)—The office responsible for, but not limited to publishing flight crew orders, flight and mission crew kits, and tracking the squadron's aircraft locations.

Scheduled Return Time (SRT)—(AFRC only) A force management tool used by the on-scene commander to assure return of the Reserve associate personnel to home station before the expiration of their active duty orders. The SRT is calculated MET plus 24 hours.

Tactical Control (TACON)—Command authority over assigned or attached forces or commands, or military capability or forces made available for tasking, that is limited to the detailed and, usually, local direction and control of movements or maneuvers necessary to accomplish missions or tasks assigned. Tactical control is inherent in operational control. Tactical control may be delegated to, and exercised at any level at or below the level of combatant command.

Transition—Practice multiple takeoffs, simulated emergency patterns, low approaches and touch and go landings. Transition timing begins when the aircraft crosses the threshold on the first approach.

Attachment 2

E-3 BAGGAGE AND EQUIPMENT LOADING

A2.1. Flight Engineer Responsibilities:

A2.1.1. Verify an AFTO Form 781A entry was made when On-Board Spare (OBS) kits are loaded.

A2.1.2. Ensure the removal of the forward two metal boxes of the OBS kits after arrival at a TDY location, if the stay will be longer than 3 days.

A2.1.3. Ensure only enough cleaning supplies are stored in the galley compartment to clean the area for one mission. Store the remaining cleaning supplies and all onboard bench stock in the dedicated crew chief box in the aft lower lobe.

A2.2. Loading Procedures. The following loading procedures apply to all E-3 operations. For more specific guidelines, refer to the following T.O.s: 1E-3A-1, 1E-3A-5-1, 1E-3A-5-2, and 1E-3A-2-7.

A2.2.1. OBS Kits. An OBS kit consists of as many as five metal boxes and one fiberglass box containing an inertial navigation unit (INU). If maintenance requires OBS kits, install the five metal boxes in the forward lower lobe using the rail system described in T.O. 1E-3A-2-7. Any other method of securing the metal boxes in the forward lower lobe is not acceptable. Secure the INU in the "J" compartment with cargo straps. Weight of OBS kits vary. The actual weight is annotated on each box. The crew chief will be responsible for recording the weights of each box and its location with an AFTO Form 781A entry. For mission planning purposes, use the standard weight of 650 pounds in the forward lower lobe and 127 pounds in "J" compartment. Make adjustments on DD Form 365-4 as necessary. After arrival at a TDY location, if the stay will be longer than 3 days, remove at least the forward two metal OBS kit boxes from the aircraft to allow for better access to the area for firefighting, etc., if the location has a means of securing the kits.

A2.2.2. Technical Orders**.** Carry one case of T.O.s when an OBS kit is loaded. Store in the "J" compartment and secure with cargo straps .

A2.2.3. Tool Box:

A2.2.3.1. Secure the inflight tool box/multimeter carried by the CT in the "J" compartment with cargo straps.

A2.2.3.2. When a crew chief tool box is required, secure it at the tiedown point in the aft lower lobe or in "J" compartment with cargo straps.

A2.2.4. FFT/Spectrum Analyzer. When carried, secure the FFT and/or spectrum analyzer in "J" compartment using cargo straps.

A2.2.5. Crew Baggage. In order to facilitate loading, crewmembers and PAX will maximize the use of soft luggage (i.e., issued B-4, A-3, and hang-up bags) for exercises and deployments. Crewmembers should be aware that proper aircraft/loading requires strapping the load down tightly in order to prevent load shifting. Crewmembers are normally allowed a baggage limit of 25 pounds on short term TDYs (7 days or less) and 55 pounds on longer deployments. However, if on mission planning day, weight appears to be critical, the AC and FE will determine the maximum allowable baggage weight and inform crewmembers and passengers of how much they will be allowed to carry. Baggage will be

secured at a height no higher than 40 inches in "J" compartment. Small, carry-on type baggage may be stacked higher that 40 inches provided they are secured at or below 40 inches.

A2.2.6. Jackets and Garment Bags. Jackets and lightweight garment bags may be stored on the clothing rack next to the lavatory.

A2.2.7. SF6. Up to four additional SF6 bottles, empty or full, may be stored in the aft lower lobe. Bottles will be secured in the SF6 storage racks, if the aircraft is modified. If not modified, use cargo straps, and up to four small bottles can be stored.

A2.2.8. RMA Kits. Store RMA kits in the area under the DDI at seat 8.

A2.2.9. Additional Baggage/Equipment. "J" compartment loading will be accomplished IAW T.O. 1E-3A-5-2.

A2.2.10. General:

A2.2.10.1. Mission crewmembers should store professional gear (i.e., pubs/helmet bag) either in "J" compartment or at their individual consoles in a manner that will minimize movement of gear.

A2.2.10.2. Compartment weight limitations will be in accordance with T.O. 1E-3A-1.

A2.2.10.3. Crew bunks will only be used for storing pillows and blankets which will be secured by seatbelts. Nothing will be stored beneath the bunks. Floor rings used to secure bunks to the floor will not be used for luggage/equipment tiedown.

Attachment 3

E-3 PASSENGER BRIEFING GUIDE

A3.1. Required Briefing Items . The following items are required briefing items unless individuals have been previously briefed during the pre-mission briefing**:**

A3.1.1. AC/MCC names.

A3.1.2. ETA to destination.

A3.1.3. Cruise altitudes.

A3.1.4. Weather enroute and at destination.

A3.1.5. Passenger on/off-load procedures.

A3.2. Emergency Signals:

A3.2.1. Ground Evacuation:

A3.2.1.1. Signal for evacuation.

A3.2.1.2. Primary/secondary exits.

A3.2.1.3. Escape slides.

A3.2.1.4. Assembly area.

A3.2.2. Crash Landing/Ditching:

A3.2.2.1. Signal for preparation.

A3.2.2.2. Signal to brace for impact.

A3.2.2.3. Brace position.

A3.2.3. Loss of Pressure:

A3.2.3.1. Signal.

A3.2.3.2. Oxygen requirements.

A3.3. Oxygen/Survival Equipment:

A3.3.1. How to check/use assigned oxygen source.

A3.3.2. LPU—fitting and use (if applicable).

A3.3.3. Survival suit—use (if applicable).

A3.4. Restrictions:

A3.4.1. Reading lights.

A3.4.2. Lavatory.

A3.4.3. Seat belts.

A3.4.4. Bunks.

A3.4.5. Smoking and smokeless tobacco are prohibited.

A3.4.6. Operation of electric/electronic devices (except watches, hand held non-print calculators, hearing aids, medically prescribed physiological instrumentation, and portable voice recorders when approved by MAJCOM) will be IAW AFI 11-202V3. Electronic flash attachments will not be used.

A3.4.7. Transportation or use of narcotics, marijuana, or other dangerous drugs is prohibited unless approved by proper medical/legal authority.

A3.4.8. Explosive, flammable and corrosive materials, or materials with toxic or irritating fumes are prohibited unless approved by competent authority.

A3.5. Galley Area:

A3.5.1. Restrictions during refueling.

A3.5.2. Oven use.

A3.5.3. Coffee.

A3.5.4. Water.

A3.5.5. Flight lunches.

A3.5.6. Noise.

A3.6. Miscellaneous:

A3.6.1. Follow E-3 crewmember instructions at all times.

A3.6.2. Ensure passengers are thoroughly briefed prior to starting any emegency drill